SERVICE MANUAL

XM-700 & XM-710
FMX-30 & CMX-20
CRX-50

6 DISC COMPACT DISC CHANGER
FM MODULATOR & CD CHANGER COMMANDER
CD CHANGER CONTROLLER

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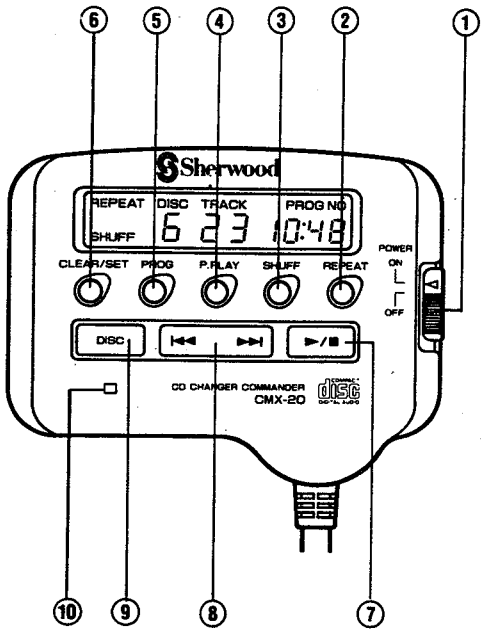
Sherwood

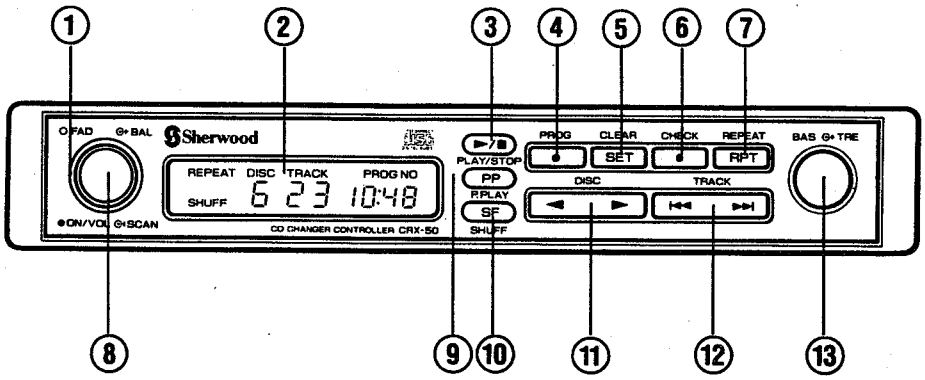
Location of Controls

1. General Section CMX-20



① Power On/Off Button
② Repeat Button
③ Shuff (Random) Button
④ Program Play Button
⑤ Program Button
⑥ Clear/Set Button
⑦ Play & Stop Button
⑧ Track Search Button (Backward/Forward)
⑨ Disc Search Button
⑩ Illumination Selector Button(Green/Amber)

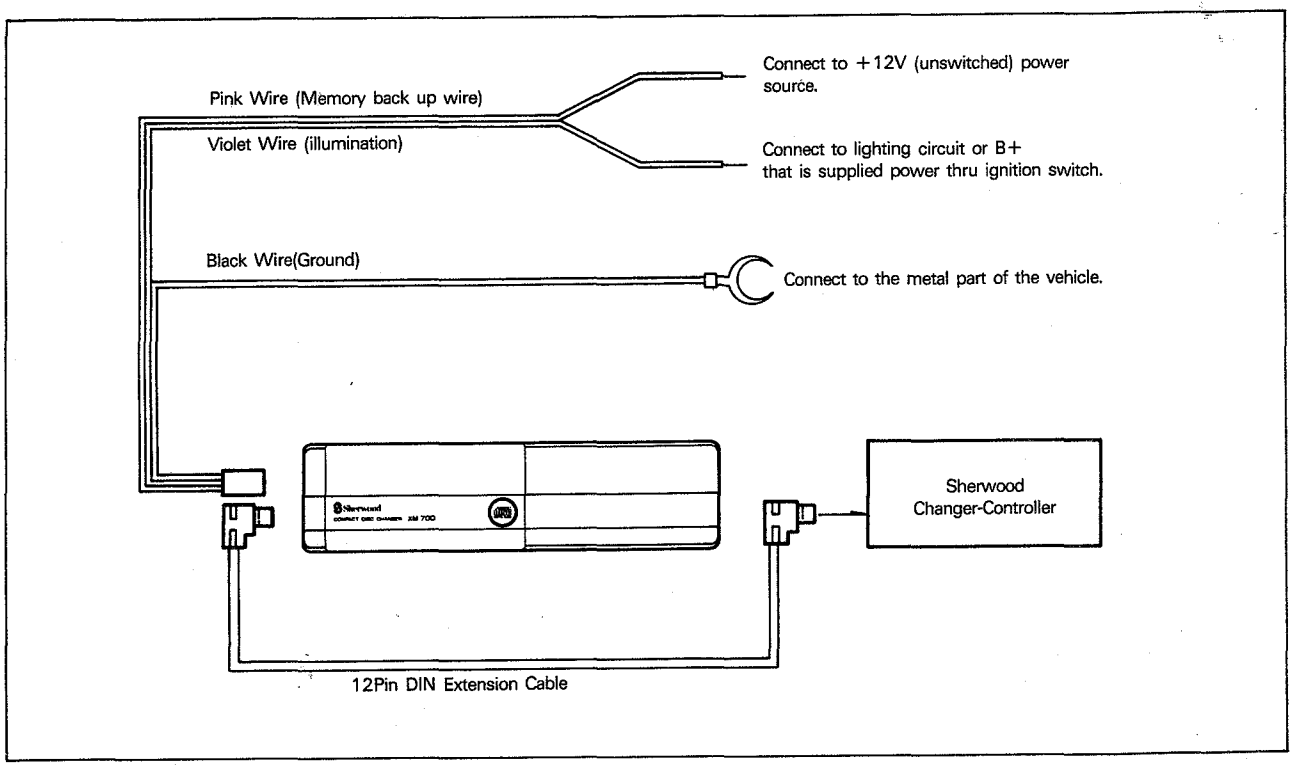
2. General Section CRX-50



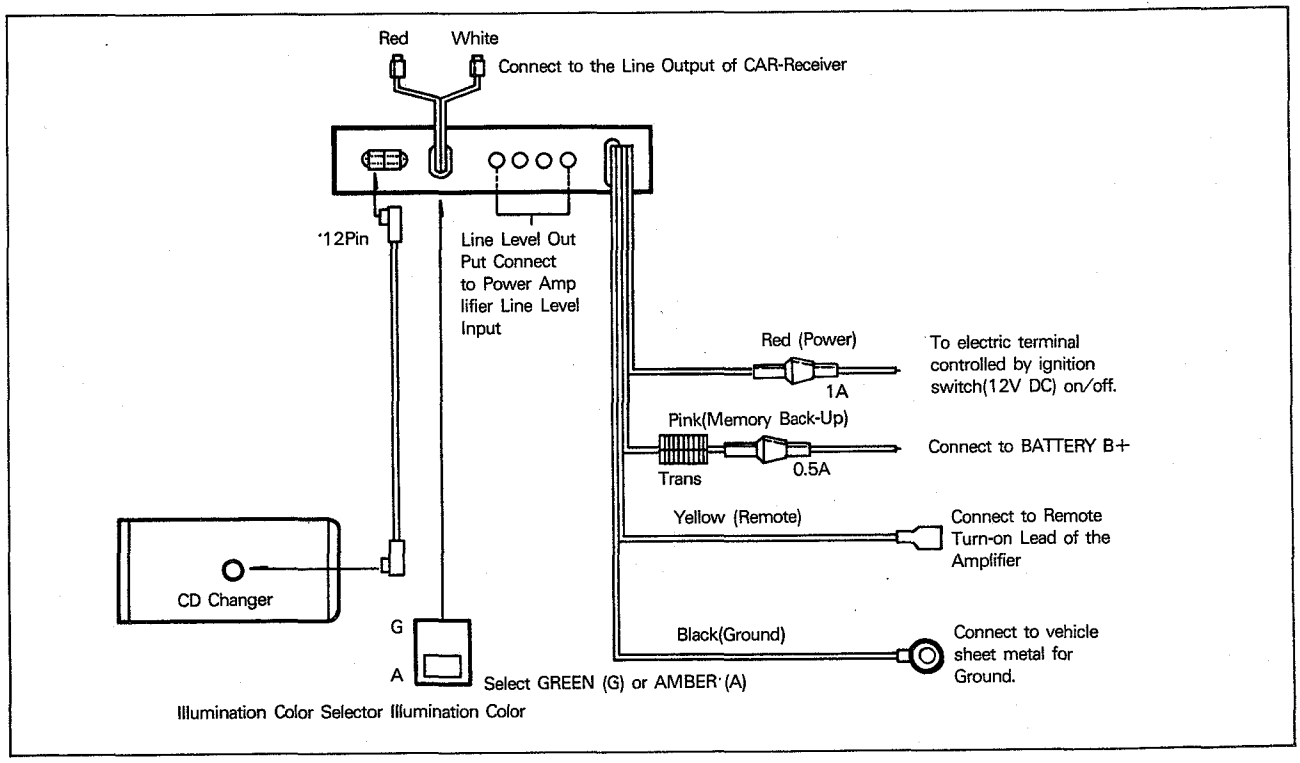
① FADER CONTROL
② DISPLAY DIGITAL SCREEN
③ PLAY & STOP BUTTON
④ PROGRAM BUTTON
⑤ CLEAR/SET BUTTON
⑥ CHECK BUTTON
⑦ REPEAT BUTTON

⑧ • POWER ON SWITCH
• VOLUME CONTROL
• BALANCE (Pull) CONTROL
• SCAN (Push) SWITCH
⑨ PROGRAM PLAY BUTTON
⑩ SHUFF (RANDOM) PLAY BUTTON
⑪ DISC SEARCH UP/DOWN SELECTOR
⑫ TRACK SEARCH SELECTOR (Backward/Forward)
⑬ BASS/TREBLE(Pull) CONTROL

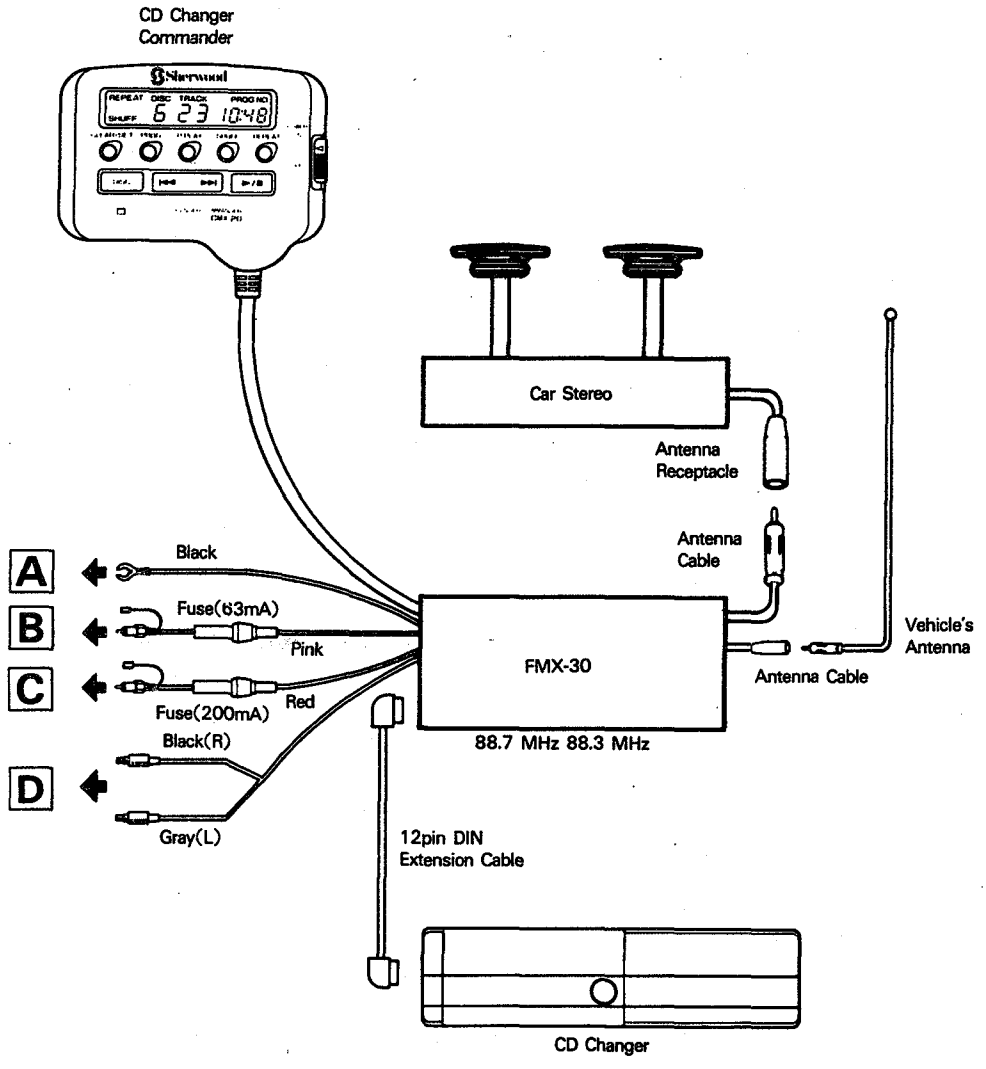
3. Wire Connection XM-700 & XM-710


Pink Wire (Memory back up wire)
Violet Wire (illumination)
Connect to +12V (unswitched) power source.
Connect to lighting circuit or B+ that is supplied power thru ignition switch.
Black Wire(Ground)
Connect to the metal part of the vehicle.
Sherwood Changer-Controller
12Pin DIN Extension Cable

4. Wire Connection CRX-50



5. Wire Connection FMX-30 & CMX-20



A • to a metal point of the car.

B • to the +12V power terminal which is energized at all times.

C • to the +12V power terminal which is energized in the accessory position of the ignition key.

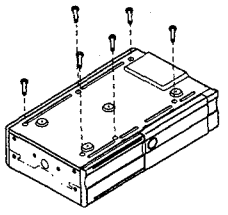
D • to the line input of high power AMP which boost the your desired sound.

Servicing Notes

1. Special Notes:

*** Precautions in Servicing the CD Player**

1. To protect the mechanism from shock and vibration during transportation, the mechanism is secured with 6 screws on the bottom of the set. Be sure to remove these screws before mounting this unit.



- Remove the screws from this unit.
- Store them with care.
- Be sure to mount them again when transporting for repair.

Mounting the Screws
Use the provided tool to fit the knob marks ▲ on both sides of the main body to V. Place the main body on a stand with its door up and tighten the screws.

2. At the time of replacing the pick-up unit, take measures for electrostatic breakage (such as, protection with a short pin) with attention given to handling.

3. At the time of diassembling the unit, be sure to turn off the power. The connection and disconnection of a connector during switching-on may break the internal IC.

1) Breakage caused by surge current and static electricity

Upon flow of large current to LD, the deterioration of LD is enhanced by strong light which is emitted by LD itself even in a very short time or LD may be broken.
The LD drive circuit should be free from flowin of surge current by the switch, etc.
Careless handing allows static electricity from the human body to be applied, causing instantaneous breakage.
For safety's sake, be sure to ground the human body, measuring instruments, and tools at mounting time.
Place the ground mat on the working bench, floor, etc.
For effective grounding. The metal portion of a soldering iron used should be grounded or its insulation resistance after 5 minutes since the soldering iron was energized should be more than 10MΩ(500VDC)and the temperature of the tip of soldering should be less than 320°C(30W).

2) 2-axle section

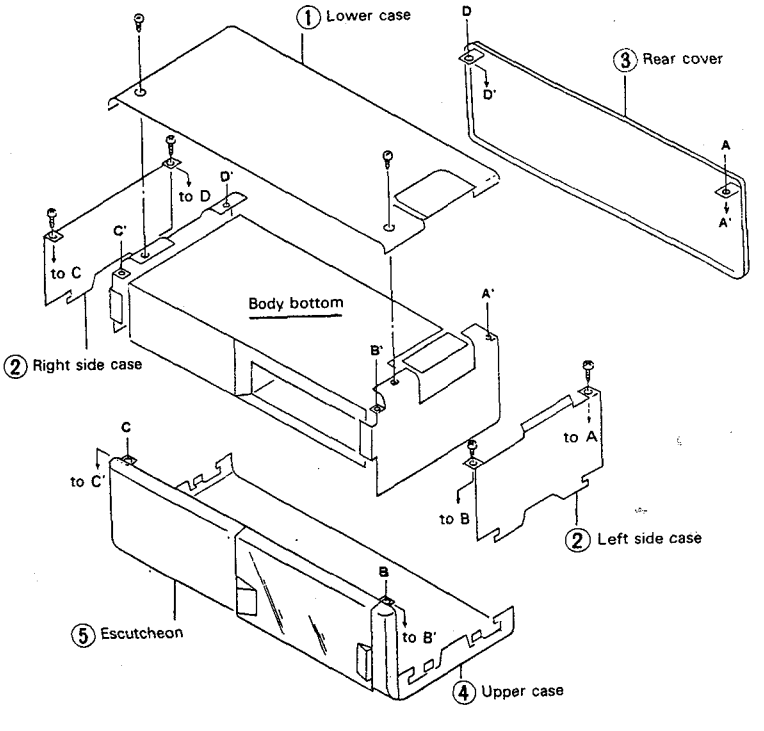
- Actuator
  Since the actuator has a strong magnetic circuit, excessive approaching of the magnetic substance changes the characteristics of the circuit.
  Any foreign matters should not be allowed to go through an opening left by a cover ajar.

- Lens cleaning
  Contamination, such as dirt and dust, changes the performance of an objective lens.
  In cleaning, swab the lens gently with lens paper immersed in isopropyl alcohol.

2. Instructions for Disassembling the Set Body:

Disassembling

1. Remove the lower case 1 (by unscrewing 2 machine screws).
2. Remove the right and left side cases 2 (by unscrewing 2 machine screws for each).
3. Remove the rear cover 3.
4. Remove the upper case 4 and escutcheon 5.
5. Remove the escutcheon 5 from the upper case 4.



Module Operation & Disassembly

1. Description of Operation

1) Holding and Releasing the Magazine (Fig. 1-1~L1-4)

a) The insertion of the magazine pushes the magazine eject plate to move the magazine lock plate engaged with it. The magazine stopper is then engaged with the lock groove of the magazine to hold the magazine, turning "ON" the magazine switch at same time.

b) The rotation of the vertical drive motor rotates the slide rink to move the magazine lock plate, turning "OFF" the magazine switch.
The engagement of the magazine's lock groove with the magazine stopper is repeased.
This allows the magazine plate to eject the magazine by the additional power of the eject plate spring.

c) The press of the magazine eject lever permits ejecting the magazine manually.

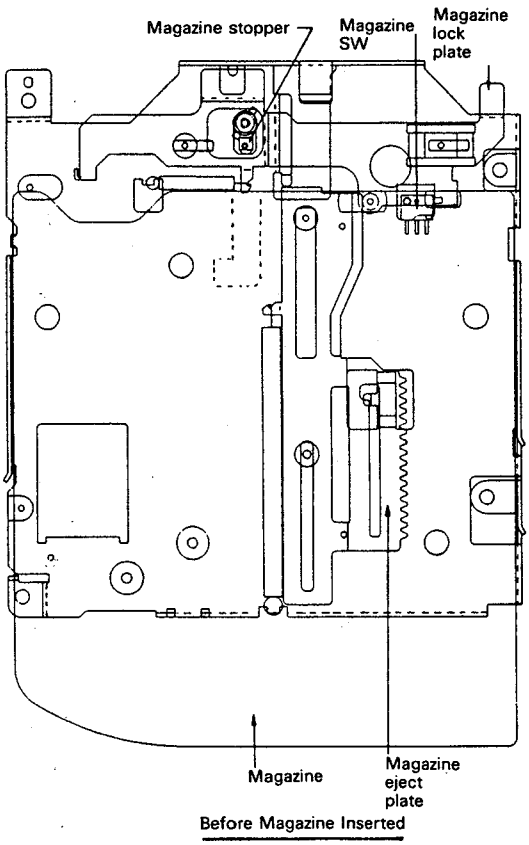


Fig. 1-1

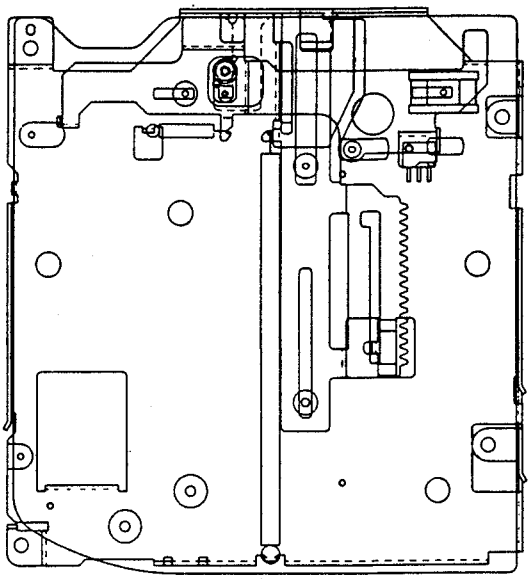


Fig. 1-2

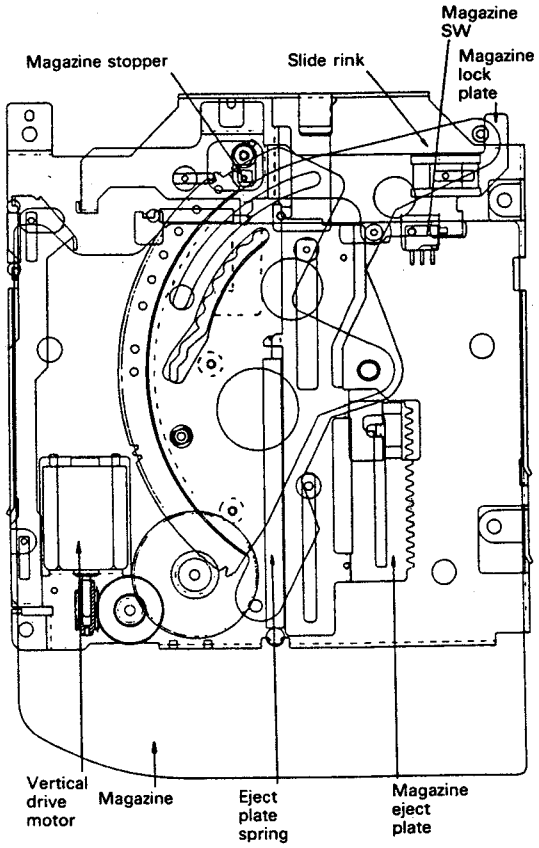


Fig. 1-3

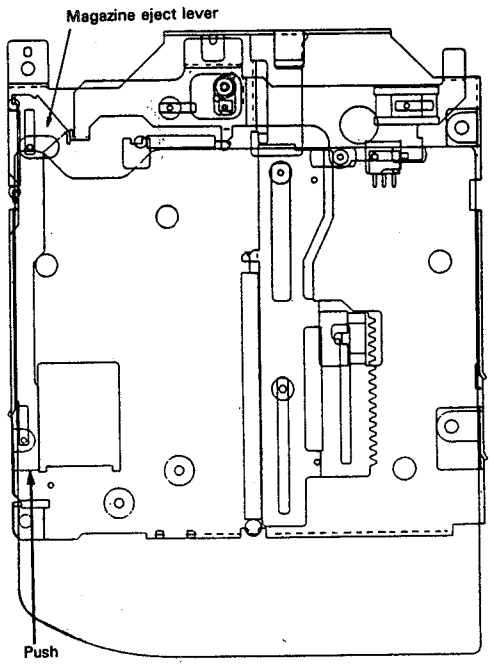


Fig. 1-4

2) Disc Selecting Mechanism (Fig. 2)

a) The rotation of the vertical drive motor rotates the slide rink to horizontally move q pair of front and rear slide plates engaged with it. The disc carrying mechanism unit engaged with the grooved cam of the slide plate is then moved vertically.

b) On the basis of the disc playing position of the plat/eject switch pushed by the SW plate engaged with the cam grooves provided on the slide gear on the slide rink, the photointerrupter detects the pores provided on the slide gear to stop the motor.

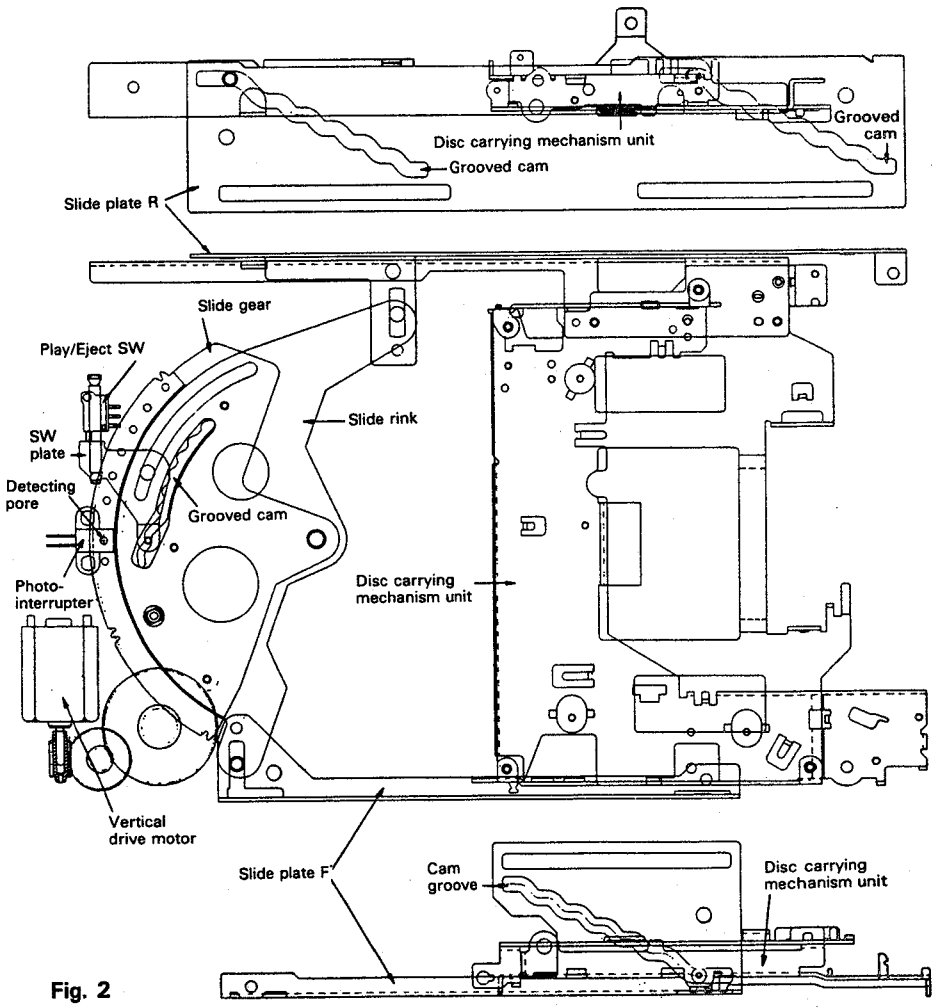


Fig. 2

3) Disc Carrying Mechanism (Fig. 3)

a) The rotation of the horizontal drive motor rotates the idler alarm to bring the idler gear and H gear D into mesh. The rotation of the H gear D moves the disc load plate to allow the disc lever on the disc load plate to eject the disc from the magazine via the disk lever in the magazine.

b) The rotation of the disc roller A connected in a gear row pulles the disc ejected from the magazine out of the horizontal drive motor and the dusc causes the disc SW alarm to turn ON the disc load end SW, stopping the motor.

c) The contrarotation of the motor causes the disc roller A to load the disc into the magazine. The LED and phototransistor detect whether the disc passes or not, stopping the motor.

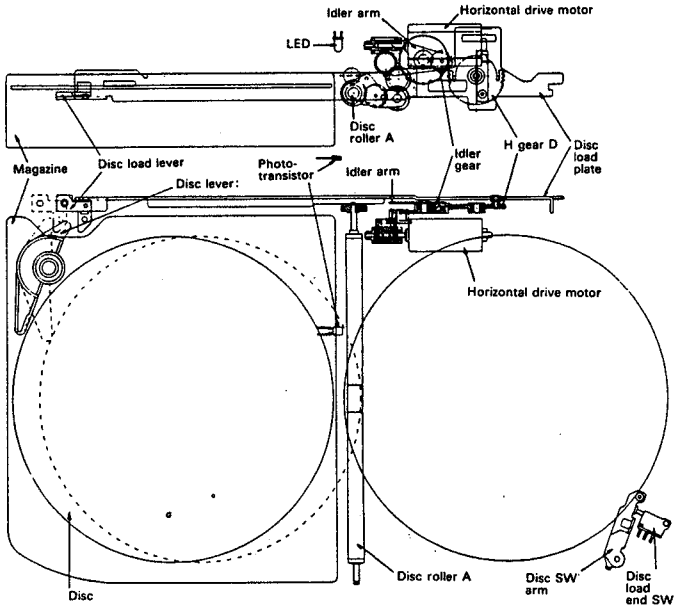


Fig. 3

4) Disc Clamping Mechanism (Fig. 4)

The lowering of the disc carrying mechanism unit to the play position causes the clamp arm to comes into contact with the disc clamp spring mounted on the chassis and the load clamps the disc touched down on the turn table of the drive unit via the disc clamp.

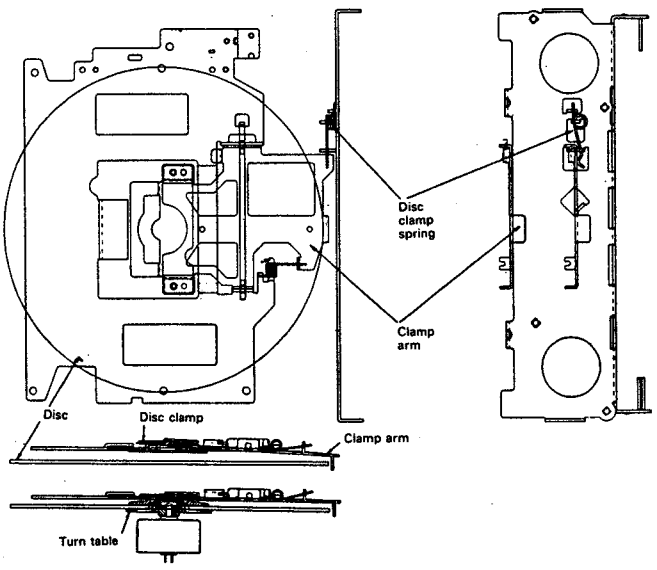


Fig. 4

2. Disassembly instructions of CD Mechanism

1) Drive Unit (Fig. 5)

a) Unscrew 3 screws to take out the drive unit.
(Be sure to wear an earth band.)
b) Load the drive unit by the reverse procedure.

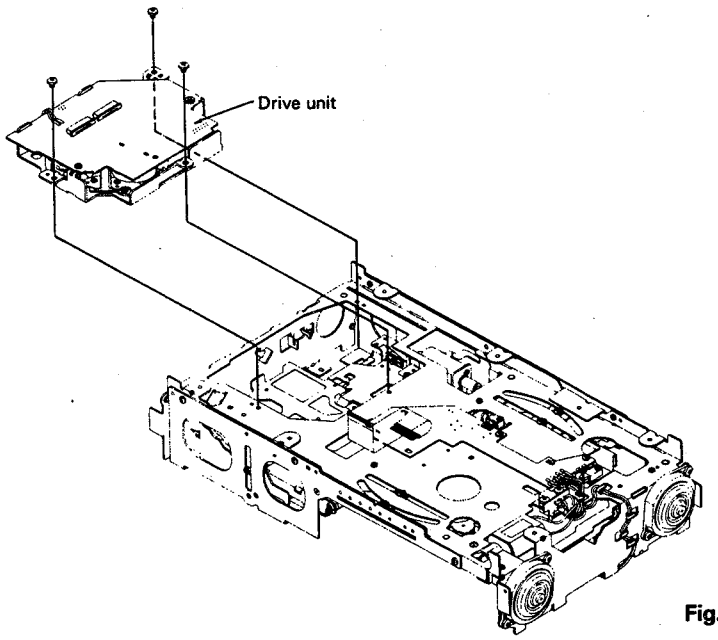


Fig. 5

2) Vertical Drive Motor (Fig. 6-1 and 6-2)

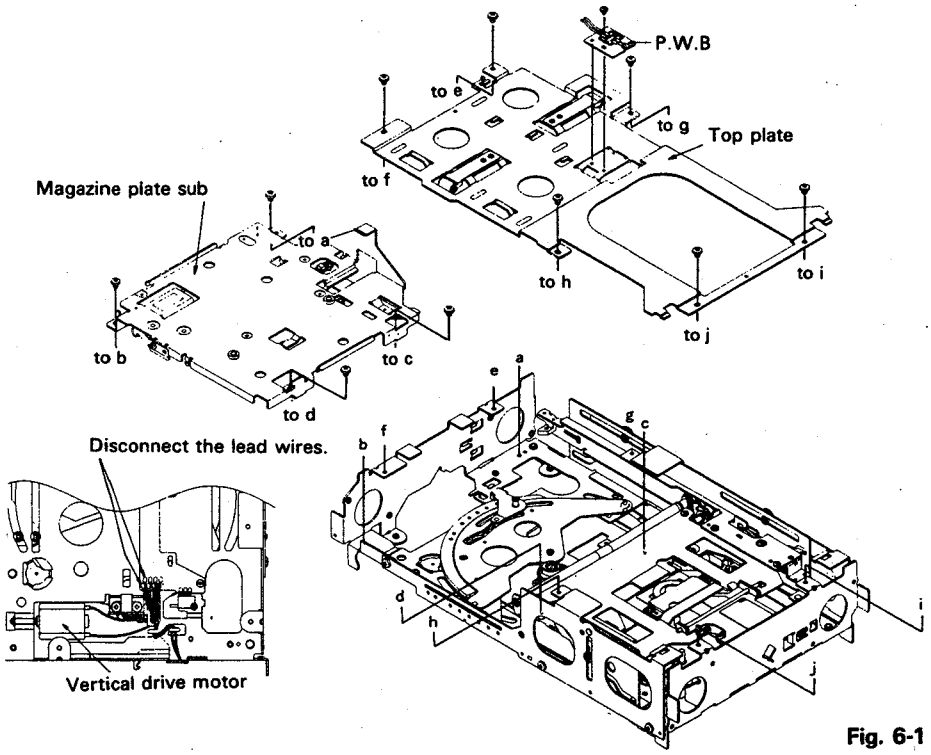


Fig. 6-1

a) Disconnect the lead wires from the P.C.B.
b) Remove the P.C.B from the top plate and dismount the top plate.
c) Remove the magazine plate sub.
d) Remove the thrust plate B and V gear A and take away the motor.
e) Assemble the above components by the reverse procedure.

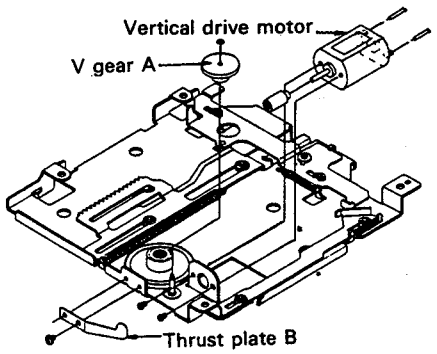


Fig. 6-2

3) Horizontal Drive Motor.
(Figs. 5, 6-1 and 7-1 to 7-4)

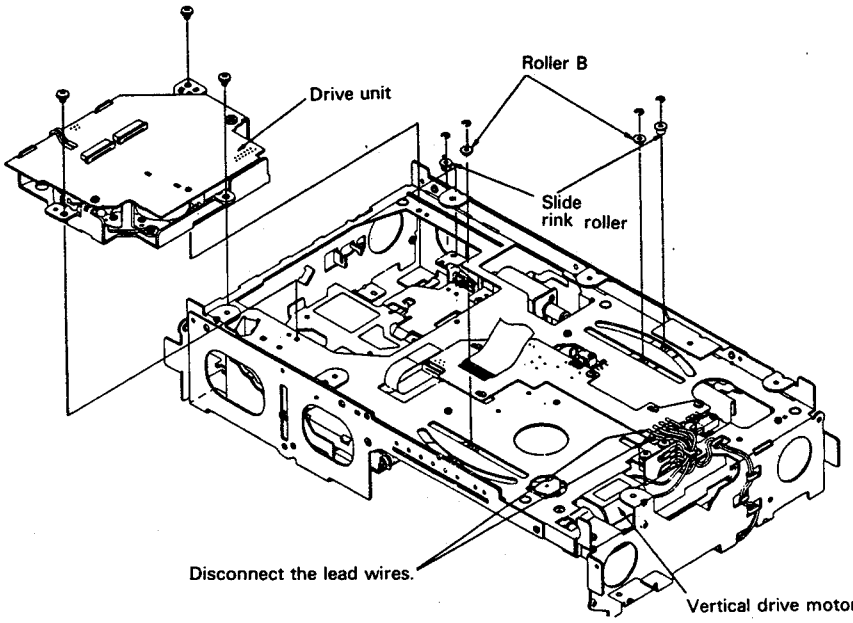


Fig. 7-1

a) Remove the drive unit.(Be sure to wear an earth band.)
b) Disconnect the lead wires from the vertical drive motor.
c) Disconnect the flexible part of the P.C.B on the lower plate from the receptacle of the relay P.C.B.
d) Remove the rollers of the slide plate and slide rink.
e) Remove the P.C.B from the top plate and take away the top plate.
f) Remove the magazine plate sub.
g) Remove the SW plate spring and dismount the SW plate and slide rink sub.
h) Remove the side plate R and slide plate R and take away the lower plate sub.
i) Disconnect the lead wires of the motor and disc load plate SW from the P.C.B.
j) Remove the thrust plate A and H motor plate and take away from the motor.
k) Assemble the above components by the reverse procedure.

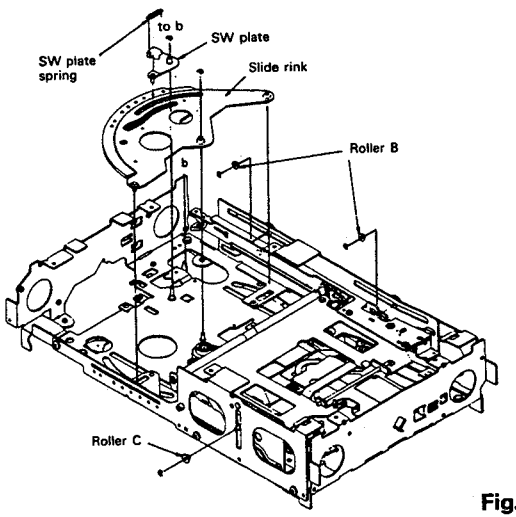


Fig. 7-2

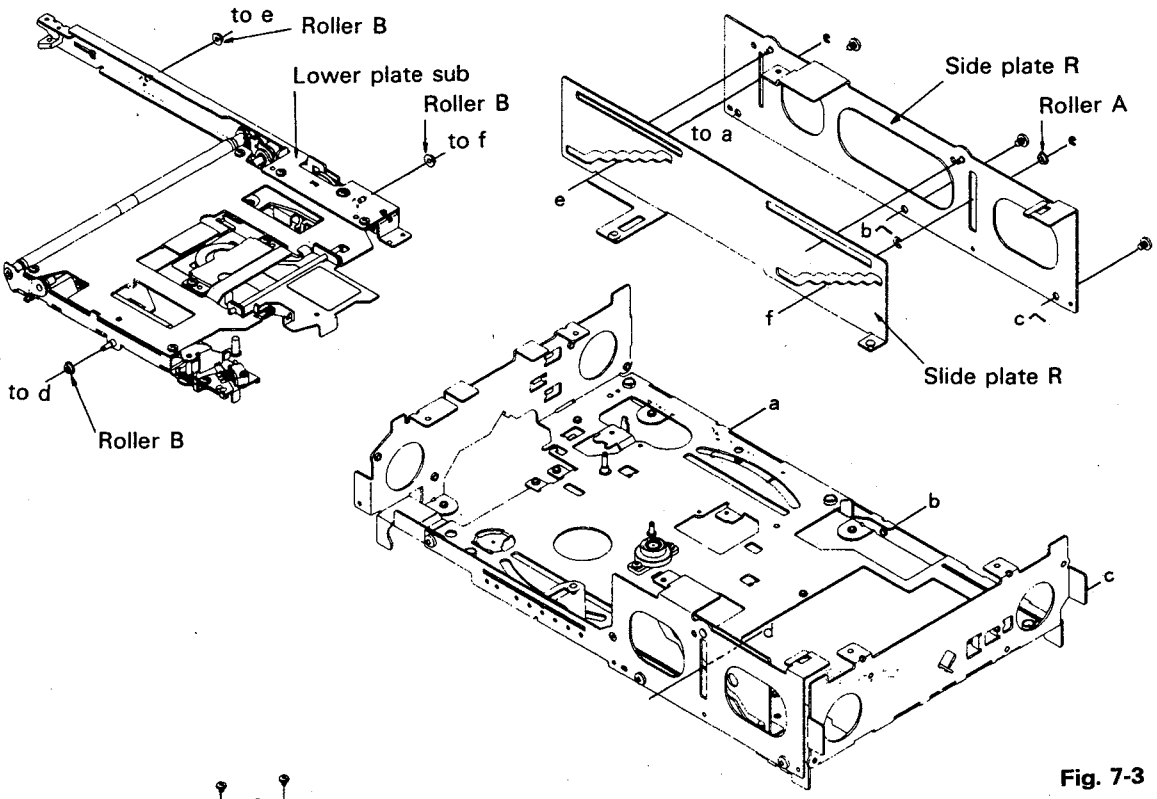


Fig. 7-3

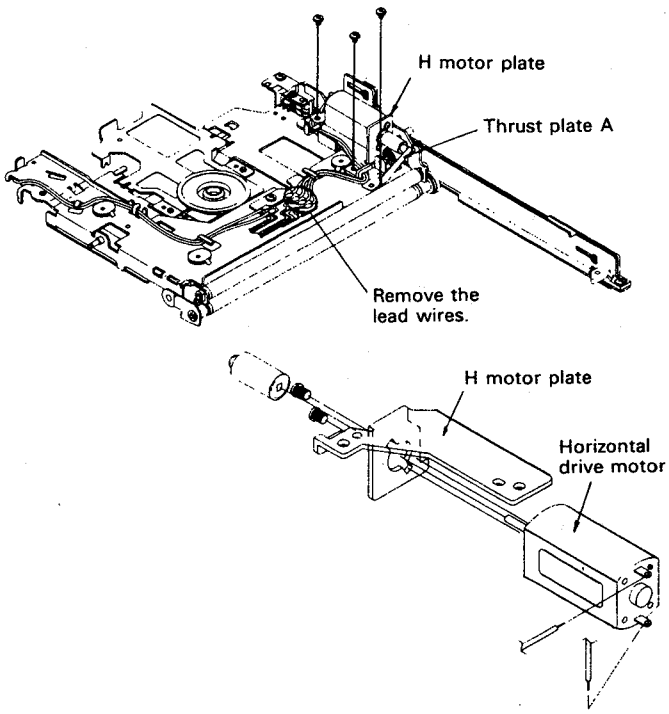


Fig. 7-4

3. Troubleshooting

1) No operation is performed evern after the magazine inserted.
   Magazine SW failure → Replace SW.
   LED failure → Replace LED.
   Phototransistor failure → Remove the phototransistor.

2) The disc cannot be taken away from the magazine.
   No rotation of horizontal drive motor → Replace the motor.
   Disc load plate SW failure → Replace SW.
   Disc roller A dirty → Clear the roller with alcohol.
   Disc load complete SW failure → Replace SW.

3) The disc will not be lowered to the play position.
   No rotation of vertical drive motor → Replace the motor.
   Play/Eject SW failure → Replace the drive unit.
   Photo-interrupter failure → Replace the photo-interrupter.

4) No sound is emitted.
   Drive unit failure → Replace the drive unit.

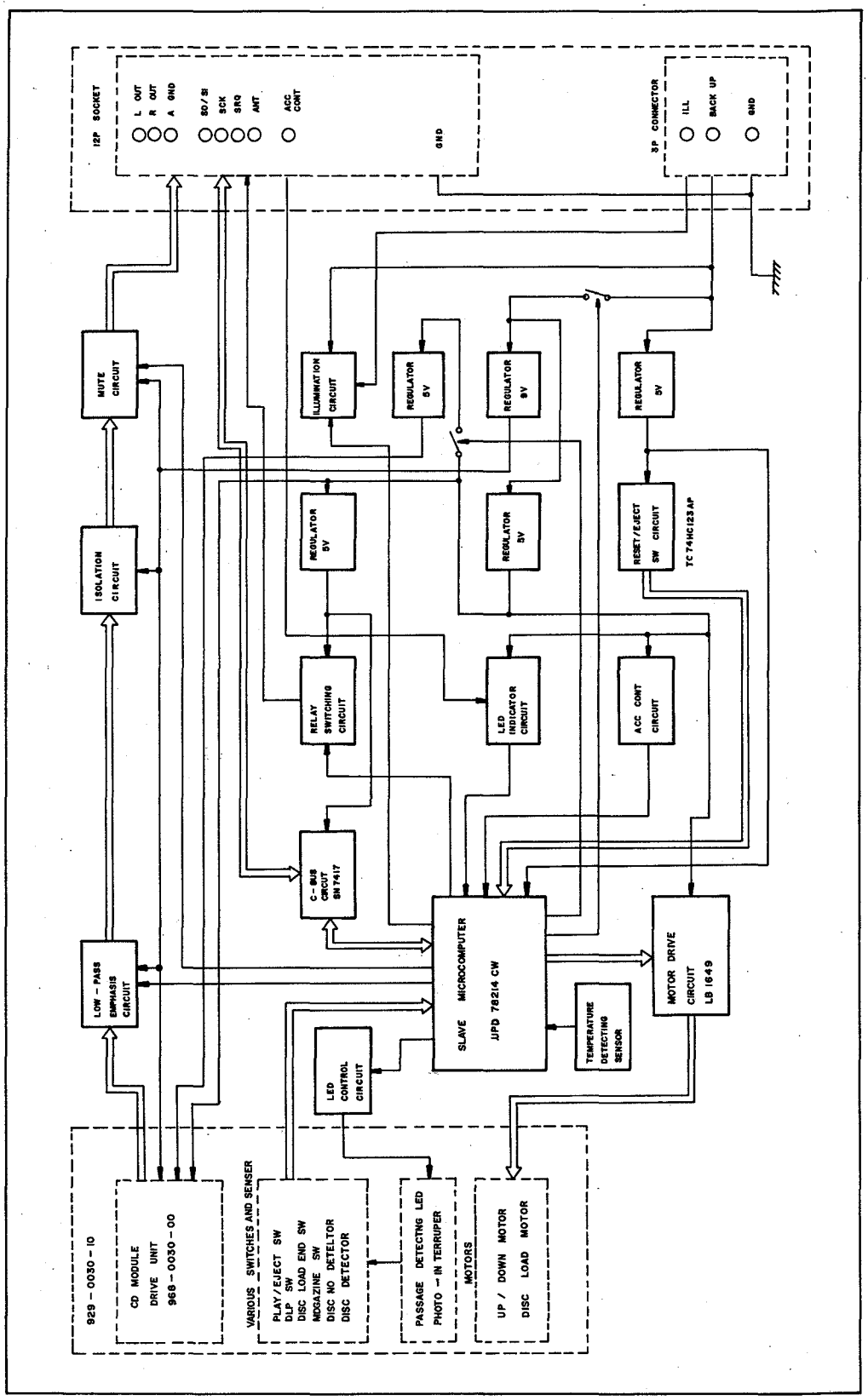
5) The disc will not be raised to the magazine loading position from the display position.
   Refer to 3.

6) The disc cannot be loaded into the magazine.
   Refer to 2.

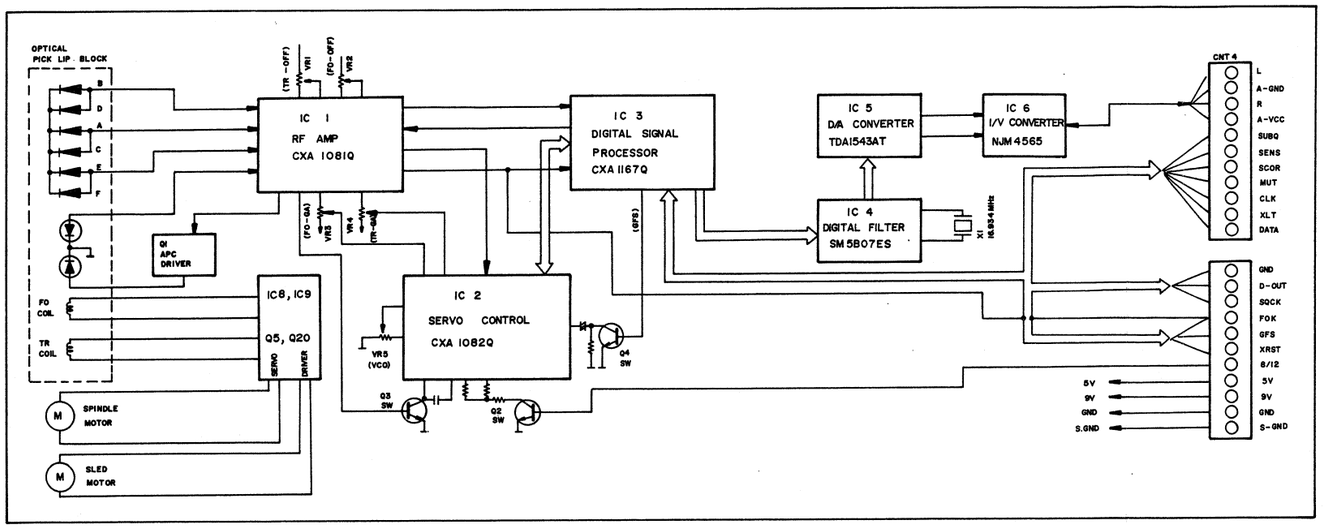
7) The magazine cannot be ejected.
   Refer to 3.

Block Diagram

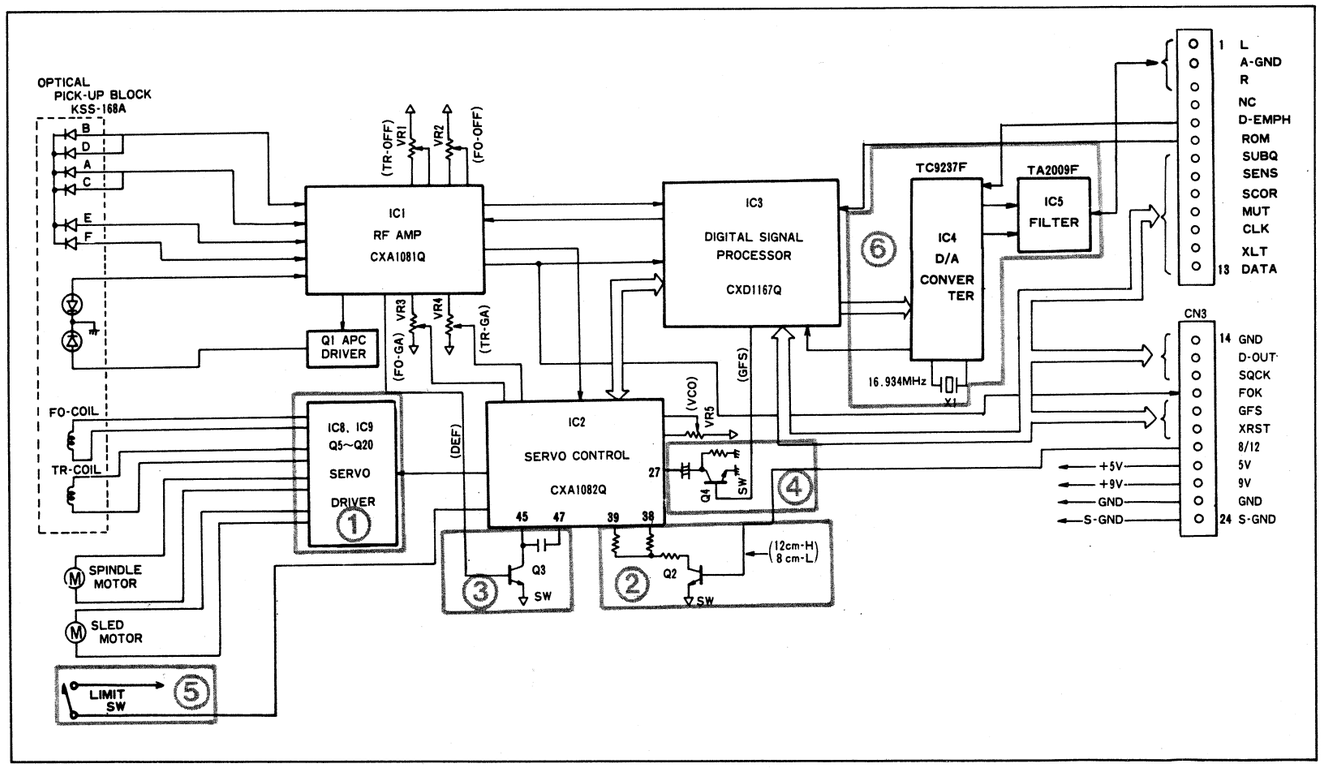
1. General Section



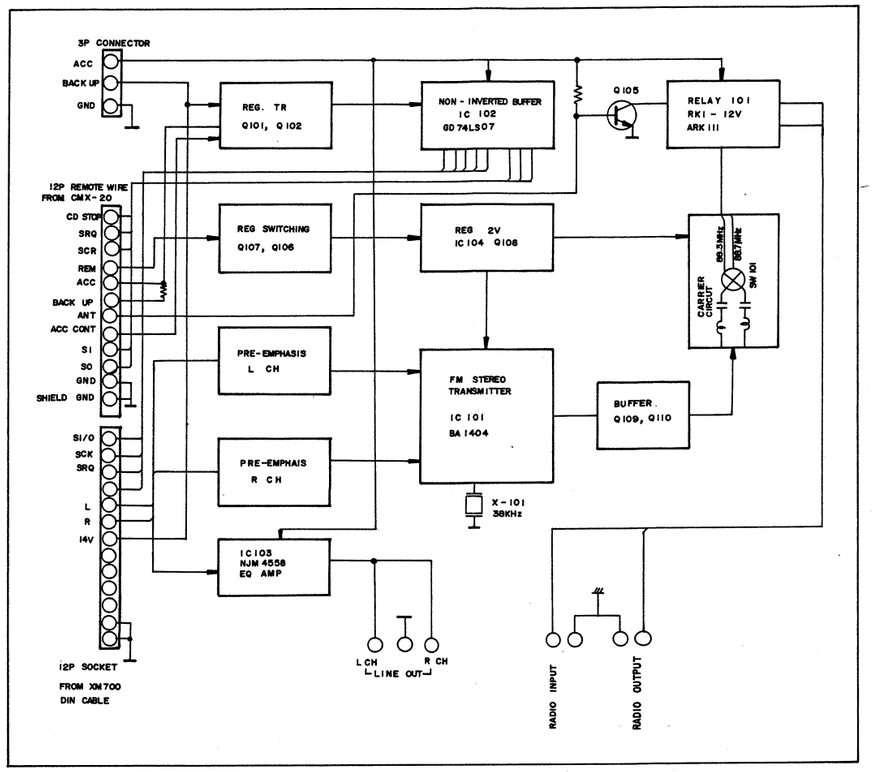
2. Drive Unit Section (XM-700)



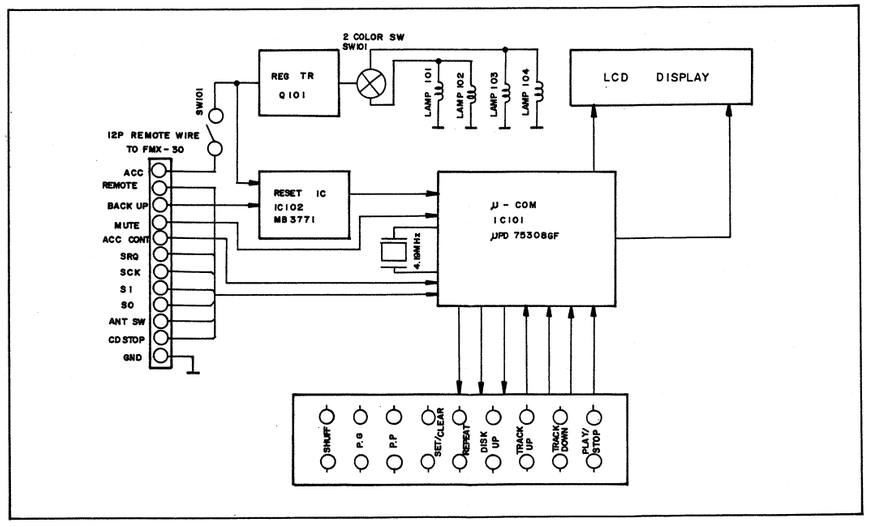
3. Drive Unit Section (XM-710)



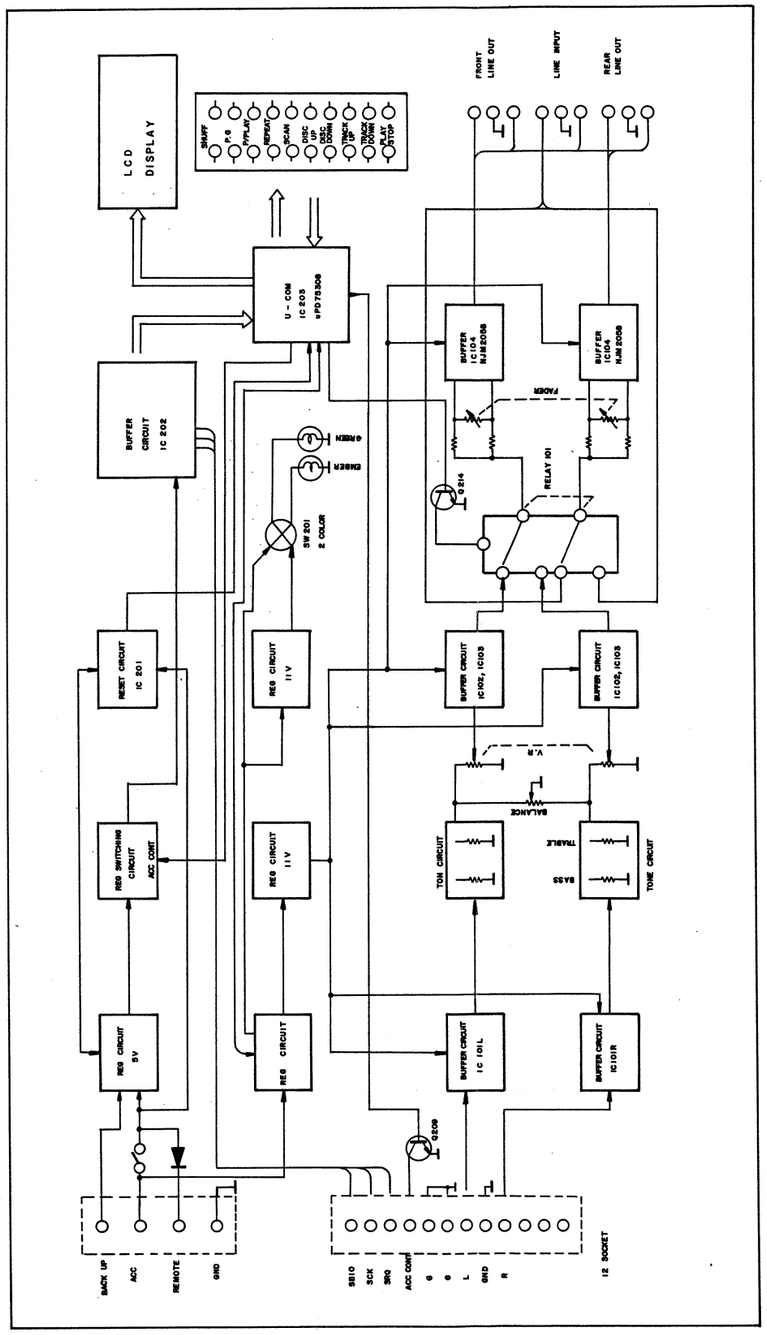
4. FM Modulator Section (FMX-30)



5. CD Changer Commander Section (CMX-20)

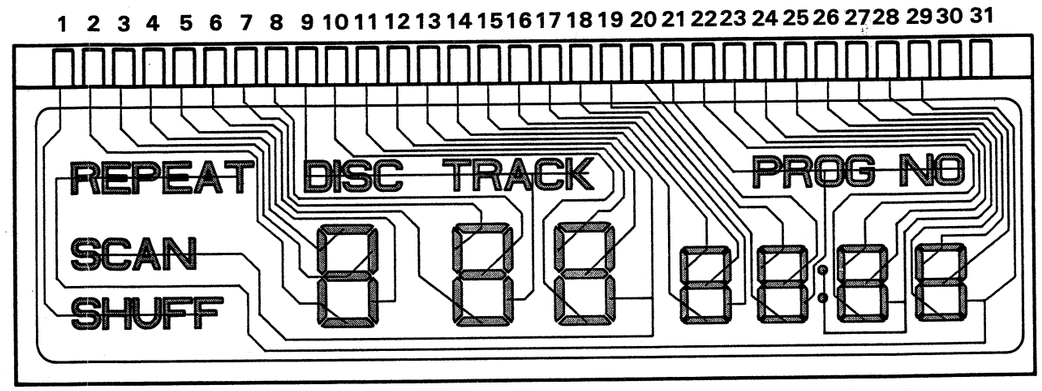


6. CD Changer Controller Section (CRX-50)

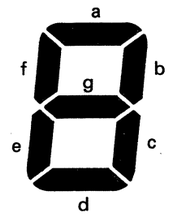


LCD Display Internal Diagram & Pin Function

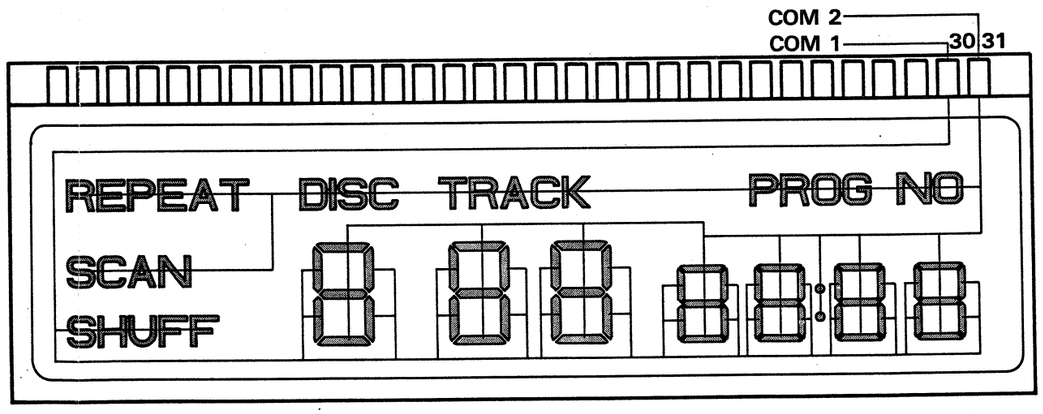
1. Pin Function



2. Segment



3. Common



Procedure for Repair and Adjustment

1) Cautions

- This unit, as operates on single power supply, operates on the basis of various mid-point potential (such as, 2.5V and 4.7V mid point).
- When observing the operating state from the reference by an dscilloscope, connect CH1 GND to the mid point for measurement. The other probe GND should not be connected anywhere.
- When measuring the laser current, the misconnection of the measuring point may damage the laser(in the pick-up section).

2) Test Disc

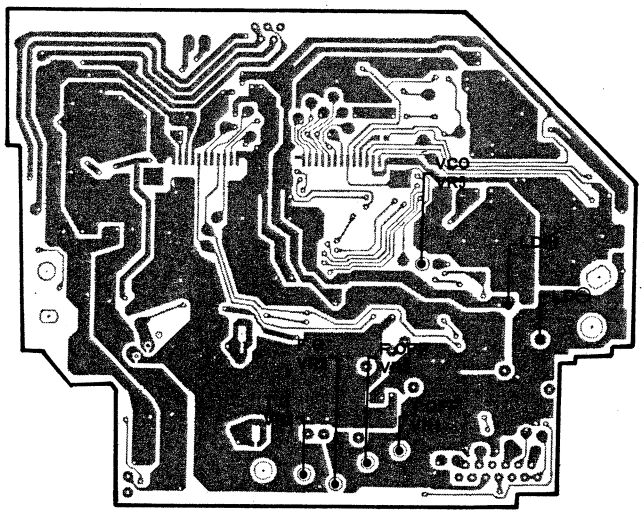
- SONY Type 4 (YEDS 18) 12cm
- ABEX Model TCD-783 8cm

3) Follow the precautions in handling the pick-up of special notes on page 2.

4) Adjusting Order

a. Tracking Offset
b. Focus Offset
c. focus Gain
d. Tracking Gain

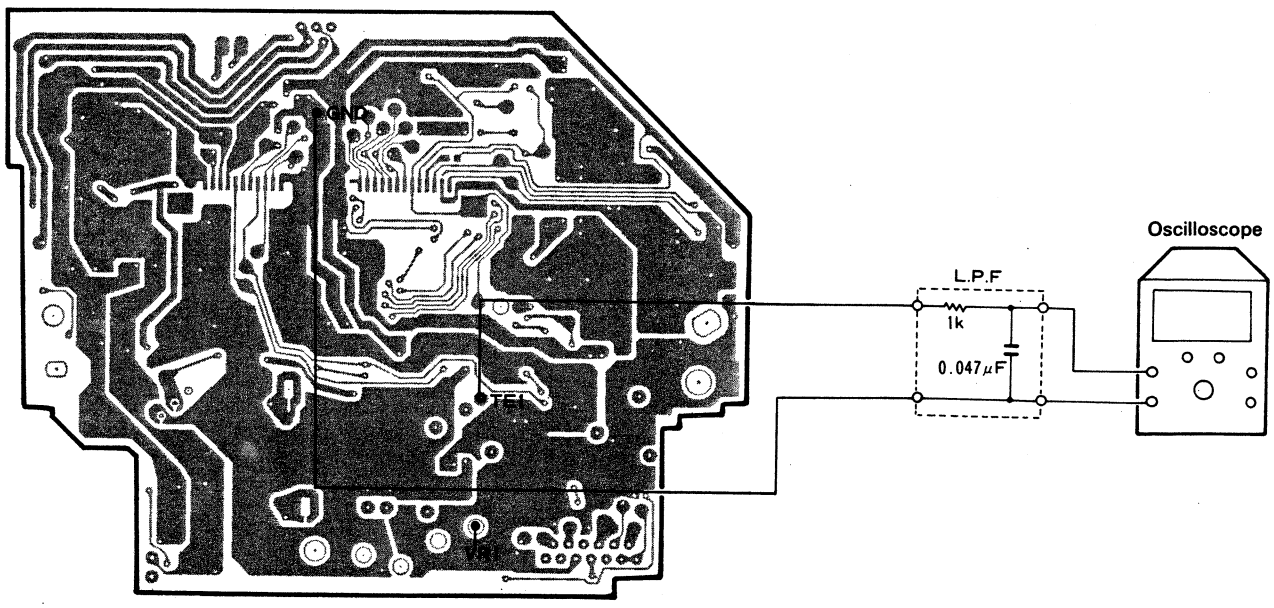
Connection diagram



1. Adjusting Tracking Offset

- **Purpose**
  To optimize the EF balance of the tracking servo.
- **When adjustment is incomplete** It takes a long time for search. The carriage runs away.
- **Measuring instrument**
  Oscilloscope
- **Measuring point** TP TE1
- **Test disc and setting state**
  SONY TYPE4, normal state
- **Adjustment:**VR1

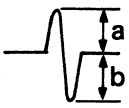
Connection diagram



Adjusting procesure

1. Make sure that the power is turned off and connect the measuring instrument as indicated in the above diagram.
2. Play back the first music of SONY TYPE4.
3. Perfrom the manual search and check the state of TR Jump(track jump) by an oscilloscope.

Adjust the tracking offset adjustmenting volume (VR1) so that the wavefrom may become symmetrical in both forward and reverse modes.

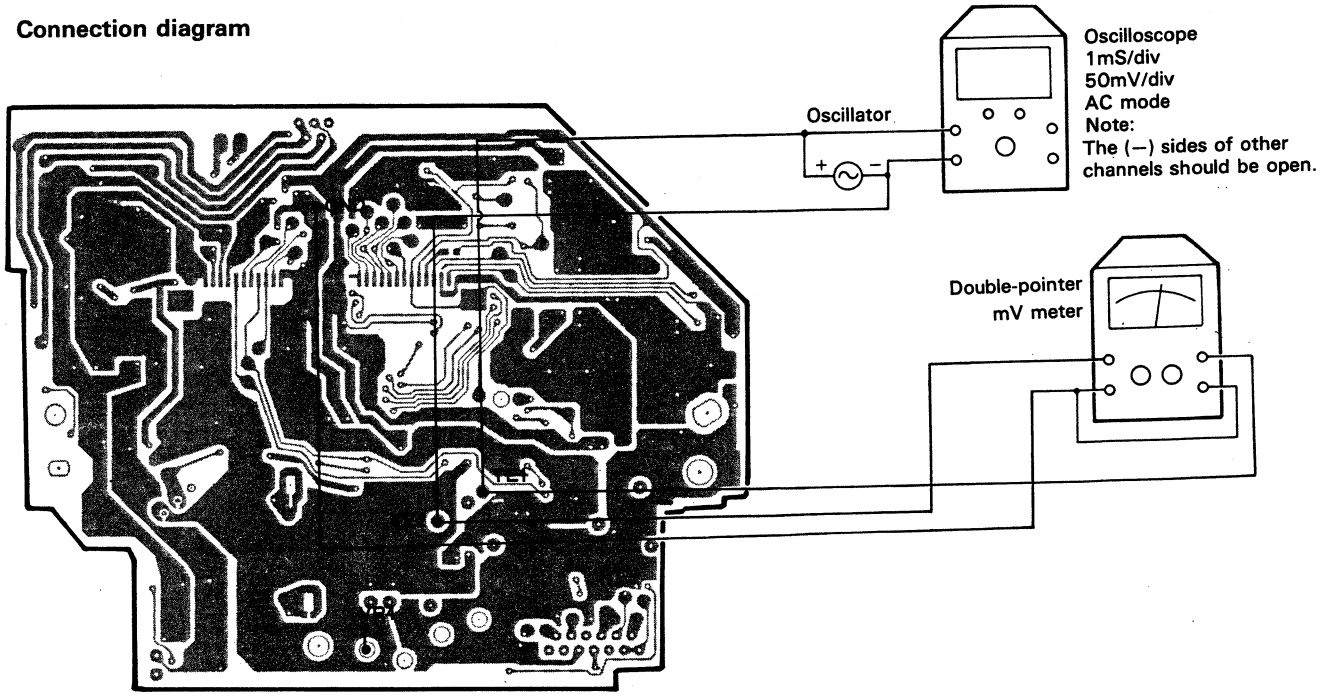


Adjust so as to be a ≒ b.

2. Adjusting the Tracking Servo Loop Gain

- **Purpose**
  To adjust the tracking servo gain to be optimum value.
- **When adjustment is incomplete**
  The playability and vibtation proof are deteriorated.
- **Measuring instrument**
  Oscilloscope, double-pointer mV meter.
- **Measuring point**
  SERTR1, SERTR2, TP, TE1,TE2
- **Test disc and setting state**
  SONY TYPE4, normal state
- **Adjustment:**VR4

Connection diagram



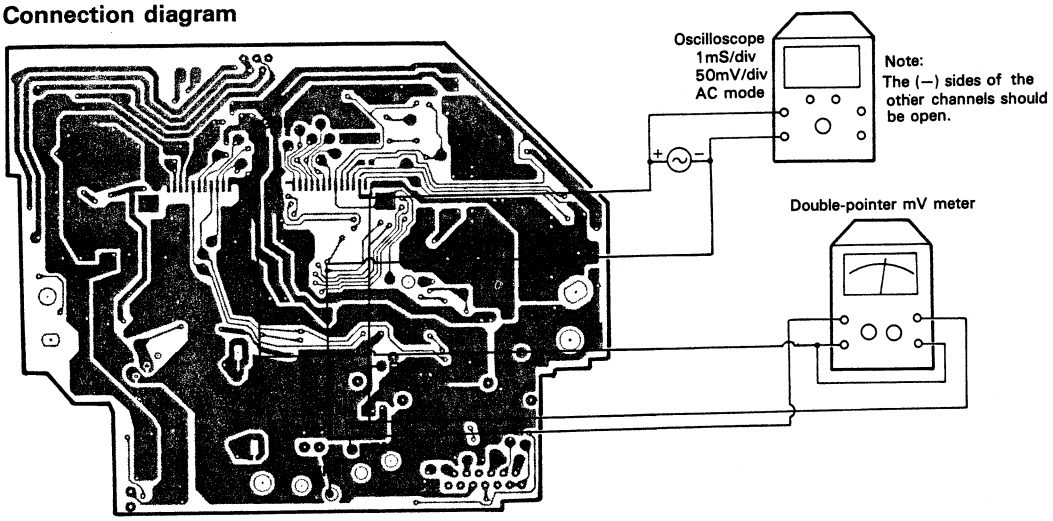
Adjusting procesure

1. Preset the oscillator. Set the output amplitude with no load to be 1Vp-p (at 1kHz).
   Note:The set value of the output level varies slightly depending on the oscillator. This set value is the one when the oscillator of about 500Ω output impedance is used. Adjustment should be made under the condition in which the servo can be activated stably even after the output of the oscillator was applied, causing no mistracking. Low output impedance provides low set output.
2. Make sure that the power is turned off and connect the measuring instruments as indicated in the above diafram.
3. Play back the first music of SONY TYPE4.
4. Adjust the tracking gain adjusting volume(VR4) so that the error of the double-pointer mV meter may be not more than 0± 0.5dB(under the condition in which 1kHz output is generated from the oscillator).

3. Adjusting the Focus Servo Loop Gain

- **Purpose**
  To adjust the focus servo loop gain to be optimum value.
- **When adjustment is incomplete**
  The playability and vibtation proof are deteriorated. S detection is apt to fail.
- **Measuring instrument**
  Oscilloscope, double-pointer mV meter.
- **Measuring point**
  TP FE1, FE2
- **Test disc and setting state**
  SONY TYPE4, normal state
- **Adjustment:**VR3

Connection diagram



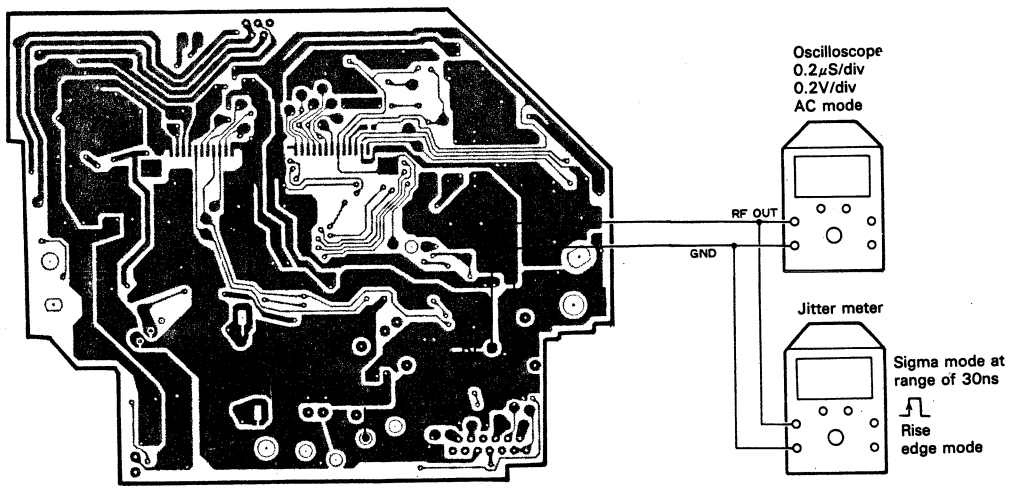
Adjusting procesure

1. Preset the oscillator. Set the output amplitude with no load to be 1Vp-p (at 1kHz).
   Note:The set value of the output level varies slightly depending on the oscillator.
   This set value is the one when the oscillator of about 500Ω output impedance is used. Adjustment should be made under the condition in which the servo can be activated stably even after the output of the oscillator was applied, causing no mistracking. Low output impedance provides low set output.
2. Make sure that the power is turned off and connect the measuring instruments as indicated in the above diafram.
3. Play back the first music of SONY TYPE4 in the normal mode.
4. Adjust the tracking gain adjusting volume(VR3) so that the error of the double-pointer mV meter may be not more than 0± 0.5dB(under the condition in which 1kHz output is generated from the oscillator).

4. Adjusting the Focus Offset

- **Purpose**
  To adjust the focus servo bias to be optimum value.
- **When adjustment is incomplete**
  The focus is hard to be closed. Playillity is deteriorated.
- **Measuring instrument**
  Oscilloscope
- **Measuring point**
  RF
- **Test disc and setting state**
  SONY TYPE4, normal state
- **Adjustment:**VR2

Connection diagram



Adjusting procesure

1. Play back the first music in the normal mode.
2. Connect the RF OUT to the jitter meter(Meguro) and adjust the focus offset adjusting volume (VR2) so that the jitter may be optimized.

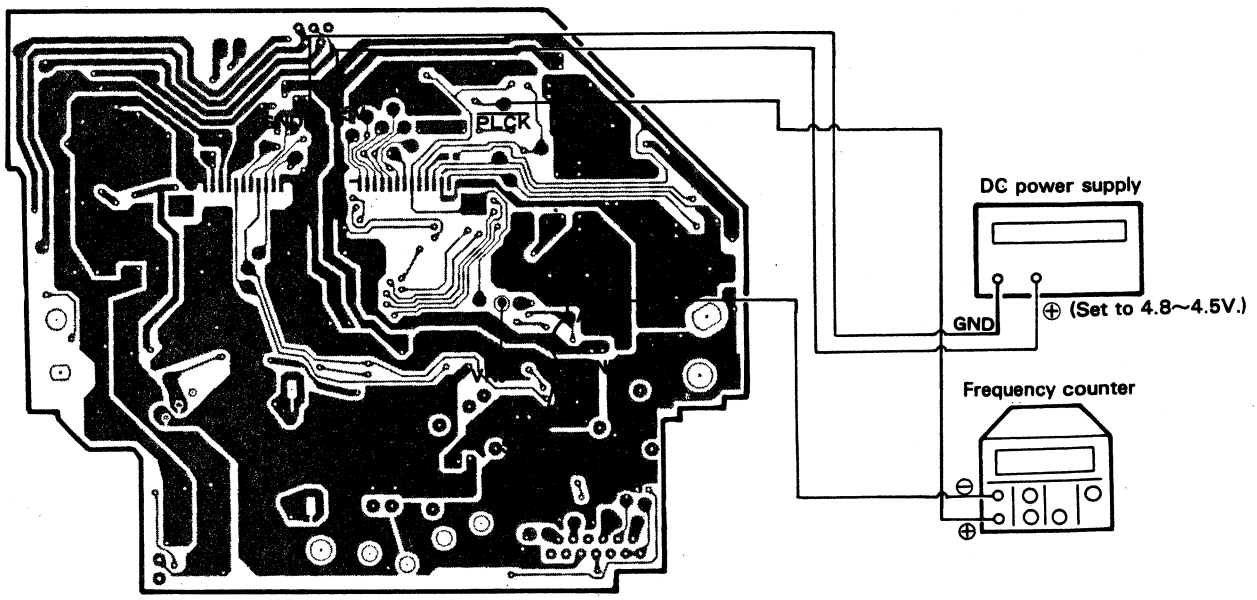
When there is no jitter meter, observe the RF OUT based on GND by an oscilloscope and adjust VR2 so that RF may be maximized and the eye pattern may be omptimized.

Note:Use the probeof 10 : 1 for connection to the jitter meter.

5. Adjusting VCO Free-run Frequency

- **Purpose**
  To adjust the free-run frequency of reference clock for EFM decoder to be optimum value.
- **When adjustment is incomplete**
  Spindle lock is impossible. The sound is not emitted or breaks.
  The-long access time is long. (22 music → 1 music or 1 music → 22 music by SONY TYPE4).
- **Measuring instrument**
  Frequency counter, various jigs for test mode
- **Measuring point**
  Pin 70 of PLCK CXD1167
- **Adjustment:**VR5

Connection diagram

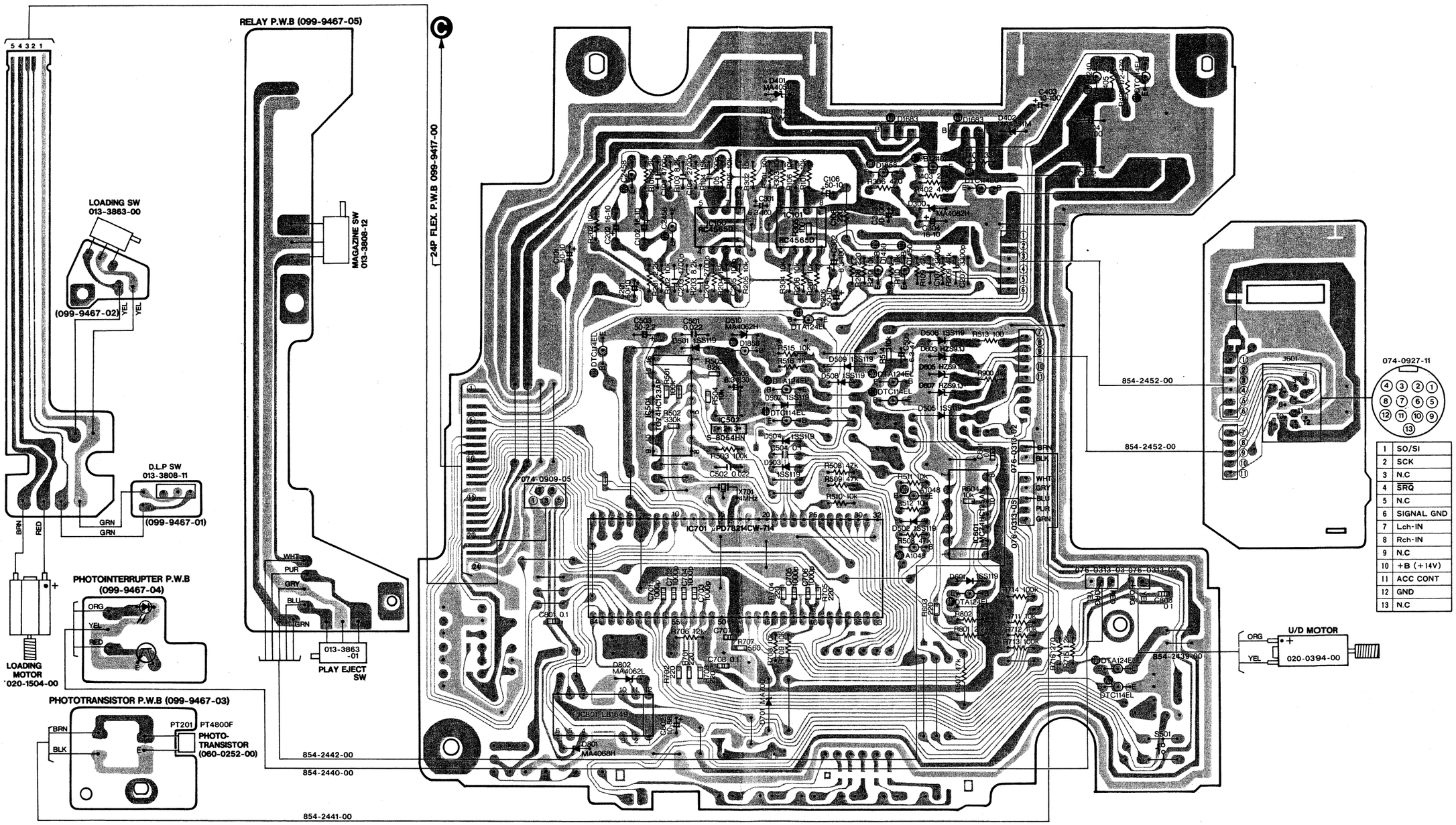


Adjusting procesure

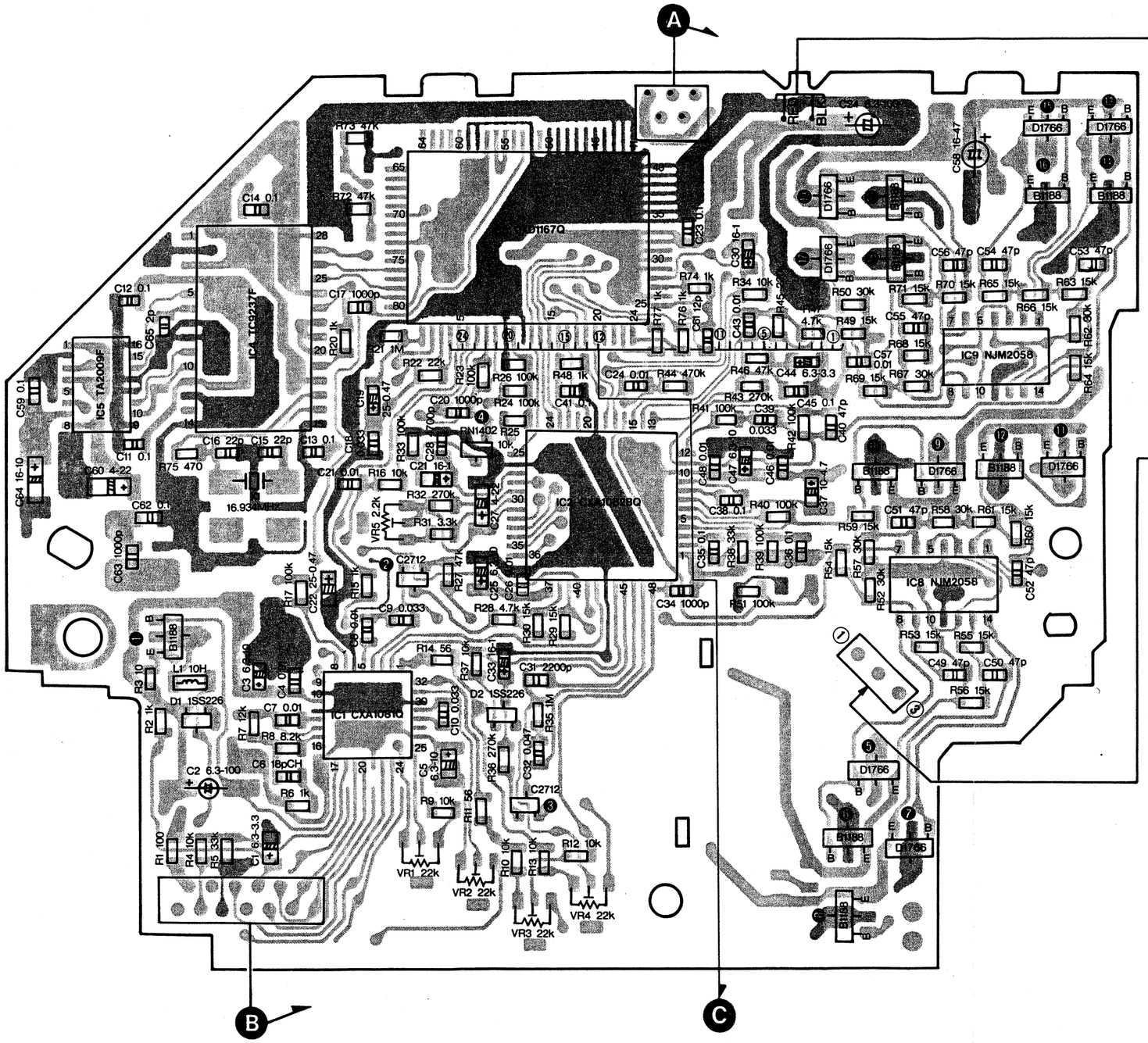
1. Remove the mechanical module from the set.
2. Short-circuit ASY to GND.
3. Connect A-Vcc and 5V to the DC power supply.
4. Turn ON the power.
5. Read the numeric value from the frequency counter.
6. Adjust to be F=4.20MHz± 10kHz.
7. Turn OFF the power.
8. Disconnect the connection.

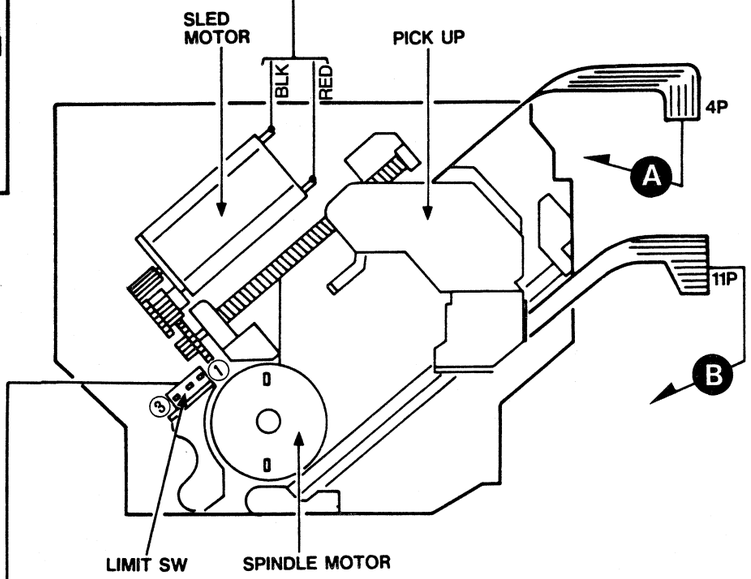
Point to Point Wiring Diagram

1. Main Section



2. MD Section


A
B
C
IC4 TC9237F
IC5 TA2009F
IC2 CXA1082BQ
IC1 CXA1081Q
IC9 NJM2058
IC8 NJM2058
D1167Q
16.934MHz
L1 10H
D1 1SS226
D2 1SS226
VR1 22k
VR2 22k
VR3 22k
VR4 22k
VR5 2.2k
C2712
BN1402
D1766
B1188


SLED MOTOR
PICK UP
BLK
RED
4P
11P
A
B
LIMIT SW
SPINDLE MOTOR

Electrical Parts Lists

1. CD Changer XM-700 & XM-710

Ref. No.	Part No.	Description	Position
Ass'y P.C.B Supply			
	4428516410	Connector Plug 5P, GIL-S-5P	
	4428516510	Connector Plug 6P, GIL-S-6P	
	4428530210	Connector Plug 3P, B3PS-VH	
	4448003411	Scoket 12P	
	4458400710	Fuse Holder	
	6503021310	Bracket Scoket	
	8009126061	Screw, BM 2.6 x 6Y	
	4003615200	Supply P.C. Board	
• Accessory Kits			
	4348900011	Ass'y Cable 12P	
	6505111410	Damper Key	
	8099150103	Screw, HEX MSP/W 5 x 10B	
	8205001010	Butter Fly NUT, M6	
	6068110710	Pocket Magazine	

2. FM Modulator FMX-30

Ref. No.	Part No.	Description	Position
Ass'y P.C.B Main			
• Integrated Circuits			
IC101	2168027104	BA1404, FM Stereo Transmitter	
IC102	2138001122	GD74LS07D, Hex NON-Inverted Buffers	
IC103	2168220104	NJM4558DD, Dual OP-Amplifier	
IC104	2168611113	HA178L02, Voltage Regulator	
• Transistors			
Q101	2228422101	NPN 2SD 1858 R-OHM(K)	
Q102	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q103~Q106	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q107	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q108	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q109	2208206105	NPN KTA 1015(Y) KEC	
Q110~Q112	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q113,Q114	2208406103	NPN KTC 1923(Y) KEC	
• Diodes			
D101	2258100135	Rectifier 1N4002 100V/1A Silicon	
D102~D104	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
D105	2258100135	Rectifier 1N4002 100V/1A Silicon	
D106,D107	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
D108~D110	2258599121	Zener DZ-6.8BS 6.8V/500mW Silicon	
D111	2258100135	Rectifier 1N4002 100V/1A Silicon	
D112	2258599122	Zener DZ-11.0BS 11V/500mW Silicon	
D113	2258599104	Zener DZ-5.6BS 5.6V/500mW Silicon	
D114~D200		Not used	
D201	2058315101	DSP301N-S00B, Surge Protector	
D202	2058817102	Varactor, SVC-203SPA	
• Crystal			
X-TAL101	3938201900	X-TAL, KF-38E	
X-TAL101	3938201970	X-TAL, FAR-V2MF-29.5MHz	

Ref. No.	Part No.	Description	Position
• Coils			
L101	2648602200	Chock Trans, 1.8mH	
L102	2648602210	Chock Trans, 1.2mH	
L103	2648610082	Inductor Coil, 10 µH	
L104	2648615982	Inductor Coil, 1.5 µH	
L105	2648622982	Inductor Coil, 2.2 µH	
L106	2648682882	Inductor Coil, 0.82 µH	
L107	2648622982	Inductor Coil, 2.2 µH	
• Semi-Fixed Variable Resistors			
VR101	3248020443	200K(B), EVN-DJAA03B25	
VR102	3248050343	50K(B), EVN-DJAA03B54	
• Capacitors			
C101,C102	3409222139	Electrolytic 220 µF 16V CV M	
C103	3479247031	Electrolytic 47 µF 16V SA M	
C104	3479310121	Electrolytic 100 µF 10V SG M	
C105,C06	3479210971	Electrolytic 1 µF 50V SA M	
C107	3479222871	Electrolytic 0.22 µF 50V SA M	
C108	3479247031	Electrolytic 47 µF 16V SA M	
C109	3479222871	Electrolytic 0.22 µF 50V SA M	
C110,C111	3479310121	Electrolytic 100 µF 10V SG M	
C112L/R	3519102935	Ceramic 0.001 µF 50V AXIAL J	
C113L/R	3519102935	Ceramic 0.001 µF 50V AXIAL J	
C114L/R	3479210971	Electrolytic 1 µF 50V SA M	
C115	3479247031	Electrolytic 47 µF 16V SA M	
C116	3519102935	Ceramic 0.001 µF 50V AXIAL J	
C117	3529100210	Ceramic 10 pF 50V CH D	
C118	3519103935	Ceramic 0.01 µF 50V AXIAL J	
C119	3519561935	Ceramic 560 µF 50V AXIAL J	
C120	3479222071	Electrolytic 22 µF 50V SA M	
C121	3519121935	Ceramic 120 pF 50V AXIAL J	
C122	3529100210	Ceramic 10 pF 50V CH D	
C123	3519121935	Ceramic 120 pF 50V AXIAL J	
C124,C125	3529100210	Ceramic 10 pF 50V CH D	
C126	3529470210	Ceramic 47 pF 50V CH D	
C127		Not used	
C128	3529470210	Ceramic 47 pF 50V CH D	
C129	3519223520	Ceramic 0.022 µF 25V AXIAL Z	
C130	3579270130	Ceramic 27 pF µF 50V J	
C131,C132	3519223520	Ceramic 0.022 µF 25V AXIAL Z	
C133	3529100210	Ceramic 10 pF 50V CH D	
C134L/R	3479210971	Electrolytic 1 µF 50V SA M	
C135L/R	3479247971	Electrolytic 4.7 µF 50V SA M	
C136L/R	3679103120	* Mylar 0.01 µF 100V J	
C137L/R	3479210971	Electrolytic 1 µF 50V SA M	
C138,C139	3519223520	Ceramic 0.022 µF 25V AXIAL Z	
TC101,TC102	3838001010	Trimmer Cap. TZ03-R200FR-169, 20pF, Red	
TC103	3838001060	Trimmer Cap. TZ03-R600FR-169, 60pF, Brown	
• Resistors (All Resistors are Carbon Film 1/5W J Type unless otherwise noted.)			
5R101	3069103970	10k ohm	
R102	3069223970	22k ohm	
R103	3069562970	5.6k ohm	
R104	3069103970	10k ohm	
R105	3069472970	4.7k ohm	
R106		Not used	
R107,R108	3069103970	10k ohm	

3. CD Changer Commander CMX-20

Ref. No.	Part No.	Description	Position
R109	3069472970	4.7k ohm	
R110	3069103970	10k ohm	
R111	3069472970	4.7k ohm	
R112	3069102970	1k ohm	
R113	3069223970	22k ohm	
R114	3069102970	1k ohm	
R115	3069332970	3.3k ohm	
R116	3069272970	2.7k ohm	
R117,R118	3069472970	4.7k ohm	
R119L/R	3069273970	27k ohm	
R120L/R	3069562970	5.6k ohm	
R121L/R	3069683970	68k ohm	
R122	3069272970	2.7k ohm	
R123	3069103970	10k ohm	
R124	3069222970	2.2k ohm	
R125	3069152970	1.5k ohm	
R126,R127	3069101970	100 ohm	
R128	3069153970	15k ohm	
R129	3069103970	10k ohm	
R130	3069560970	56 ohm	
R131	3069221970	220 ohm	
R132	3069103970	10k ohm	
R133	3069153970	15k ohm	
R134	3069101970	100 ohm	
R135	3069271970	270 ohm	
R136~R143	3069102970	1k ohm	
R144L/R	3069222970	2.2k ohm	
R145L/R	3069272970	2.7k ohm	
R146L/R	3069104970	100k ohm	
R147,R148	3069104970	100k ohm	
R149,R150	3069101970	100 ohm	
R151L/R	3069222970	2.2k ohm	
R152L/R	3069272970	2.7k ohm	
R153L/R	3069103970	10k ohm	
R154L/R	3069102970	1k ohm	
R155	3069102970	1k ohm	
• Others			
RELAY101	5528001540	Relay, ARK1111-RK1-12V	
RADIO INPUT	4353001912	Antenna Receptacle Ass'y	
ANT INPUT	4353002012	Antenna Plug Ass'y	
SW101	4618007810	Slide Switch, SS-2207, 88.3M/88.7MHz	
	4358503910	Connector Ass'y 3P	
	4428516410	Connector Plug 5P, GIL-S-5P-S2T2-EF	
	4428516610	Connector Plug 7P, GIL-S-7P-S2T2-EF	
	4428517510	Connector Plug 2P	
	4428517610	Connector Plug 3P	
	4448003411	Scoket 12P	
	4002614900	Main P.C. Board	

Ref. No.	Part No.	Description	Position
• Integrated Circuits			
IC101	2138313147	μPD75308GF, LCD Control LSI	
IC102	2138000157	MB3771, FPT-8P, Power Supply Monitor	
• Transistors			
Q101	2228422101	NPN 2SD 1858 R-OHM(K)	
Q102	2208622107	NPN 2SC 1740(S) R-OHM(K)	
• Diode			
D101	2258599122	Zener DZ-11.0BS 11V/500mW Silicon	
• X-TAL			
X-TAL101	3938101880	Resonator, CST 4.19MGW	
• Switchs			
SW101	3238011110	Slide Switch, ESD-11V, Power ON/OFF	
SW102	4628501001	Push Switch, ESB64805, 2 Color Switch	
SW103~ SW111	4658003510	Tact Switch, SKHLAK018A	
• Capacitors			
C101,C102	3479247031	Electrolytic 47 μF 16V SA M	
C103	3579472530	Ceramic 0.0047 μF 50V Z	
C104	3579102530	Ceramic 0.001 μF 50V Z	
C105	3509104530	Ceramic 0.1 μF 50V Z	
C106	3579473530	Ceramic 0.047 μF 50V Z	
• Resistors (All Resistors are Carbon Film 1/5W J Type unless otherwise noted.)			
R101	3069471970	470 ohm	
R102		Not used	
R103	3069563970	56k ohm	
R104	3069224970	220k ohm	
R105	3069473970	47k ohm	
R106	3069154970	150k ohm	
R107	3069472970	4.7k ohm	
R108,R109	3069223970	22k ohm	
R110~R112	3069103970	10k ohm	
R113,R114	3069223970	22k ohm	
• Lamps			
LAMP101~104	2528206010	Lamp, 12V/60mA, 20mm, Wire Type	
• Others			
	4358512910	Connector Ass'y 12P, GIL-S-12	
	4428525620	Connector Plug GIL-12P-S2L2-EF	
	8728000180	Lamp Color Cap, 910G-20, Amber	
	8728001410	Lamp Color Cap, Pilot, Green	
	2338029929	LCD, LE-0705BP	
	8533007310	Filter LCD	
	8553013710	Reflector LCD	
	8543038910	Knob Slide	
	8553013620	Knob Stopper	
	4003614700	Main P.C. Board	

4. CD Changer Controller CRX-50

Ref. No.	Part No.	Description	Position
Ass'y P.C.B Main			
• Integrated Circuits			
IC101	2168220132	NJM2058DD, Dual OP-Amplifier	
IC102	2168220104	NJM4558DD, Dual OP-Amplifier	
IC103,IC104	2168220132	NJM2058DD, Dual OP-Amplifier	
IC201	2138000157	MB3771, FPT-8P, Power Supply Monitor	
IC202	2138001122	GD74LS07D, Hex NON-Inverted Buffers	
IC203	2138313147	µPD75308GF, LCD Control LSI	
• Transistors			
Q201	2228422101	NPN 2SD 1858 R-OHM(K)	
Q202	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q203	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q204,Q205		Not used	
Q206	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q207	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q208,Q209	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q210	2028406124	PNP KTB 1366(Y) KEC	
Q211,Q212	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q213	2228422101	NPN 2SD 1858 R-OHM(K)	
Q214	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q215	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q216~Q300		Not used	
Q301	2208622107	NPN 2SC 1740(S) R-OHM(K)	
Q302L/R	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q303L/R	2208606112	NPN KTD 1302(B) KEC	
Q304L/R	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q305L/R	2208606112	NPN KTD 1302(B) KEC	
Q306L/R	2208222106	PNP 2SA 933(S) R-OHM(K)	
Q307L/R	2208606112	NPN KTD 1302(B) KEC	
• Diodes			
D201,D202	2258100135	Rectifier 1N4002 100V/1A Silicon	
D203	2258599104	Zener DZ-5.6BS 5.6V/500mW Silicon	
D204~D206	2258599121	Zener DZ-6.8BS 6.8V/500mW Silicon	
D207,D208	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
D209,D210		Not used	
D211	2258599107	Zener DZ-9.1BM 9.1V/500mW Silicon	
D212	2258599116	Zener DZ-12BM 12V/500mW Silicon	
D213	2258100135	Rectifier 1N4002 100V/1A Silicon	
D214	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
D215	2258100135	Rectifier 1N4002 100V/1A Silicon	
D216		Not used	
D217	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
D218	2258599104	Zener DZ-5.6BS 5.6V/500mW Silicon	
D219	2258599107	Zener DZ-9.1BM 9.1V/500mW Silicon	
D220~D300		Not used	
D301	2058322101	Switching 1N4148(M) 60V/500mW Silicon	
• Crystal			
X-TAL101	3938101880	Resonator, CST4.19MGW	
• Capacitors			
C101L/R	3479222971	Electrolytic 2.2 µF 50V SA M	
C102L/R	3579220130	Ceramic 22 pF 50V J	

Ref. No.	Part No.	Description	Position
C103L/R	3679472120	Mylar 0.0047 µF 100V J	
C104L/R	3679223120	Mylar 0.022 µF 100V J	
C105L/R	3679223120	Mylar 0.022 µF 100V J	
C106L/R	3479222971	Electrolytic 2.2 µF 50V SA M	
C107L/R	3479222971	Electrolytic 2.2 µF 50V SA M	
C108L/R	3479222971	Electrolytic 2.2 µF 50V SA M	
C109L/R	3479210031	Electrolytic 10 µF 16V SA M	
C110L/R	3479210031	Electrolytic 10 µF 16V SA M	
C111	3479247031	Electrolytic 47 µF 16V SA M	
C112	3479210121	Electrolytic 100 µF 10V SA M	
C113	3519102935	Ceramic 0.001 µF 50V AXIAL J	
C114L/R	3479222971	Electrolytic 2.2 µF 50V SA M	
C115	3479247031	Electrolytic 47 µF 16V SA M	
C116L/R	3479210031	Electrolytic 10 µF 16V SA M	
C117L/R	3479210031	Electrolytic 10 µF 16V SA M	
C118~C200		Not used	
C201	3479322149	Electrolytic 220 µF 25V SG M	
C202	3479210971	Electrolytic 1 µF 50V SG M	
C203	3479322149	Electrolytic 220 µF 25V SG M	
C204	3479210121	Electrolytic 100 µF 10V SG M	
C205	3479247021	Electrolytic 47 µF 10V SA M	
C206	3479210971	Electrolytic 1 µF 50V SA M	
C207	3579472530	Ceramic 0.0047 µF 50V Z	
C208	3579473530	Ceramic 0.047 µF 50V Z	
C209	3579103530	Ceramic 0.01 µF 50V Z	
C210	3579102530	Ceramic 0.001 µF 50V Z	
C211	3479210971	Electrolytic 1 µF 50V SA M	
C212	3479233031	Electrolytic 33 µF 16V SA M	
C213		Not used M	
C214	3479247031	Electrolytic 47 µF 16V SA	
C215	3409347139	Electrolytic 470 µF 16V SG	
C216	3479322149	Electrolytic 220 µF 25V SG	
C217	3479247031	Electrolytic 47 µF 16V SA	
C218	3579102530	Ceramic 0.001 µF 50V Z	
C219~C300		Not used	
C301	3479322041	Electrolytic 22 µF 25V SA M	
• Resistors (All Resistors are Carbon Film 1/5W J Type unless otherwise noted.)			
R101L/R	3069122970	1.2k ohm	
R102L/R	3069123970	12k ohm	
R103L/R	3069563970	56k ohm	
R104L/R	3069392970	3.9k ohm	
R105L/R	3069222970	2.2k ohm	
R106L/R	3069153970	15k ohm	
R107L/R	3069153970	15k ohm	
R108L/R	3069102970	1k ohm	
R109L/R	3069563970	56k ohm	
R110L/R	3069222970	2.2k ohm	
R111L/R	3069103970	10k ohm	
R112L/R	3069103970	10k ohm	
R113L/R	3069222970	2.2k ohm	
R114L/R	3069221970	220 ohm	
R115	3069103970	10k ohm	
R116	3069123970	12k ohm	
R117	3069560970	56 ohm	
R118L/R	3069103970	10k ohm	
R119L/R	3069473970	47k ohm	
R120L/R	3069562970	5.6k ohm	
R121L/R	3069562970	5.6k ohm	
R122,R123	3069103970	10k ohm	

Ref. No.	Part No.	Description	Position
R124L/R	3069101970	100 ohm	
R125L/R	3069101970	100 ohm	
R126L/R	3069103970	10k ohm	
R127L/R	3069103970	10k ohm	
R128~R200		Not used	
R201		Not used	
R202,R203	3069103970	10k ohm	
R204		Not used	
R205	3069332970	3.3k ohm	
R206	3069103970	10k ohm	
R207	3069473970	47k ohm	
R208	3069103970	10k ohm	
R209	3039391472	390 ohm Metal Oxide 1W J Type	
R210	3069121970	120 ohm	
R211	3069181970	180 ohm	
R212		Not used	
R213	3069472970	4.7k ohm	
R214	3069333970	33k ohm	
R215	3069103970	10k ohm	
R216	3069154970	150k ohm	
R217	3069472970	4.7k ohm	
R218	3069223970	22k ohm	
R219	3069823970	82k ohm	
R220	3069223970	22k ohm	
R221	3069562970	5.6k ohm	
R222	3069333970	33k ohm	
R223	3069224970	220k ohm	
R224	3069473970	47k ohm	
R225	3069103970	10k ohm	
R226~R234	3069102970	1k ohm	
R235	3069822970	8.2k ohm	
R236	3069332970	3.3k ohm	
R237	3069102970	1k ohm	
R238	3069473970	47k ohm	
R239	3069103970	10k ohm	
R240	3069102970	1k ohm	
R241	3069103970	10k ohm	
R242	3069123970	12k ohm	
R243	3069471970	470 ohm	
R244	3069103970	10k ohm	
R245	3069473970	47k ohm	
R246	3069393970	39k ohm	
R247	3069184970	180k ohm	
R248,R249	3069223970	22k ohm	
R250~R300		Not used	
R301	3069332970	3.3k ohm	
R302	3069333970	33k ohm	
R303	3069332970	3.3k ohm	
R304	3069103970	10k ohm	
R305L/R	3069103970	10k ohm	
R306L/R	3069472970	4.7k ohm	
R307L/R	3069102970	1k ohm	
R308L/R	3069103970	10k ohm	
R309L/R	3069472970	4.7k ohm	
R310L/R	3069102970	1k ohm	
R311L/R	3069103970	10k ohm	
R312	3069472970	4.7k ohm	

• Others

RELAY101	5528001020	Relay, RZ-12	
SW201	4618007910	Slide Switch, SS-2201B, 2 Color Switch	
	3228016410	Potentiometer, TP98J26NA-L	
	3228016510	Potentiometer, EVU-4XA205B15-100K(B)	
	4358103109	Connector Ass'y 3P, 35023-0310 DL	
	4358104702	Connector Ass'y 4P, 5395-0470 SL	
	4358505210	Connector Ass'y 5P	
	4438108910	RCA Cord Ass'y 2P, Gold	
	4448003411	Scoket 12P	
LAMP201,202	2528201011	Lamp, 14V/40mAQ, φ3, Wire Type	
	6505113810	Lamp Color Cap, 901N-30, Green	
	8728000170	Lamp Color Cap, 901G-20, Amber	
	2338029929	LCD, LE-0705BP	
	8555036310	Filter LCD	
	6505113810	Cover LCD	
	4002615600	Main P.C. Board	

Ass'y P.C.B Lamp

LAMP103~ LAMP106	2528201111	Lamp, 14V/40mA, φ3, PCB Type	
	8725000110	Lamp Color Cap, 901N-30, Green	
	8728000170	Lamp Color Cap, 910G-20, Amber	
	4002615610	Lamp P.C. Board	

Ass'y P.C.B Front

• Switchs

SW101~ SW111	4658003510	Tact Switch, SKHLAK018A	

• Others

	2528205910	Lamp, 12V/40mA, 20mm, φ3, Wire Type	
	8728000130	Lamp Color Cap, A3006-G60, Green	
	8728000180	Lamp Color Cap, 901G-20, Amber	
	4115301230	Sumi Card Connector, 6P x 49	
	4115301240	Card Cable, 7P x 50	
	4003614900	Front P.C. Board	

NOTE : RESISTOR/CAPACITOR TOLERANCE ;

D : ± 0.5%, J : ± 5%, K : ± 10%, M : ± 20%, Z : +80%, −20%

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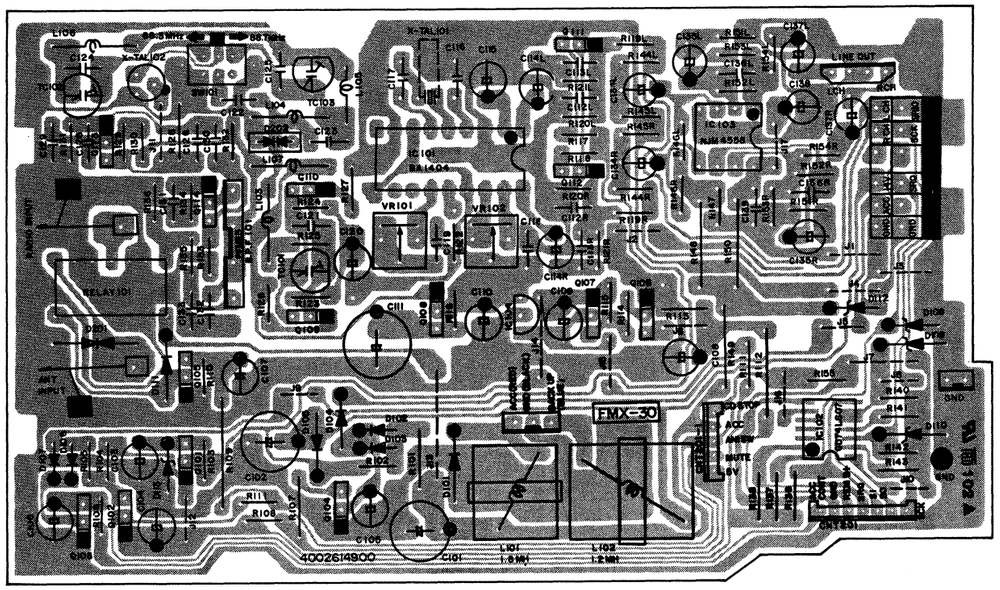
Top & Bottom View of P.C. Boards

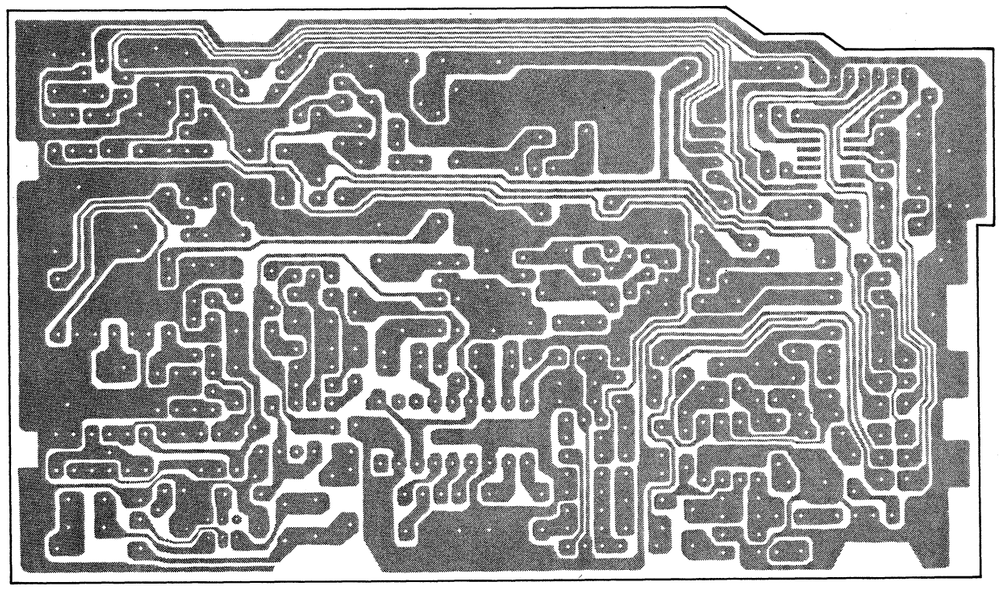
1. FM Modulator FMX-30

MAIN P.C. BOARD 4002614900

–TOP VIEW–

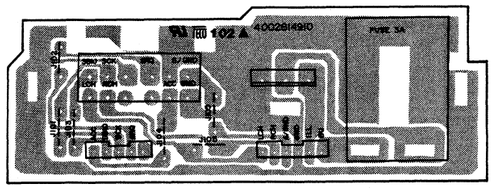


–BOTTOM VIEW–

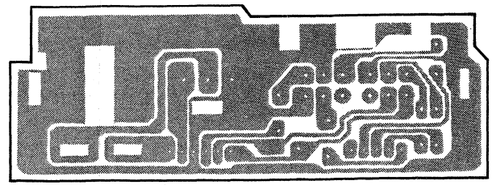


SUPPLY P.C. BOARD 4002614910

–TOP VIEW–



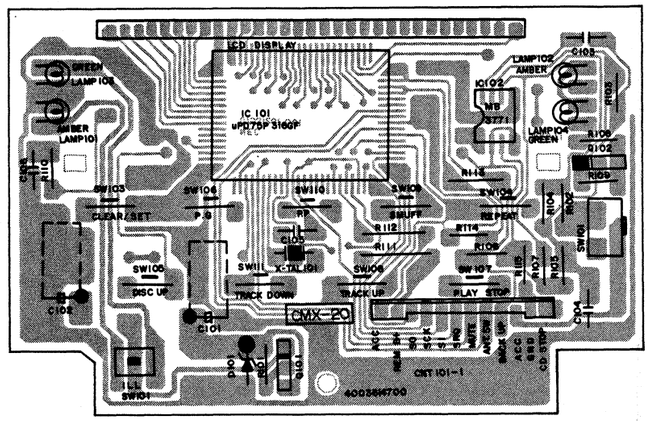
–BOTTOM VIEW–



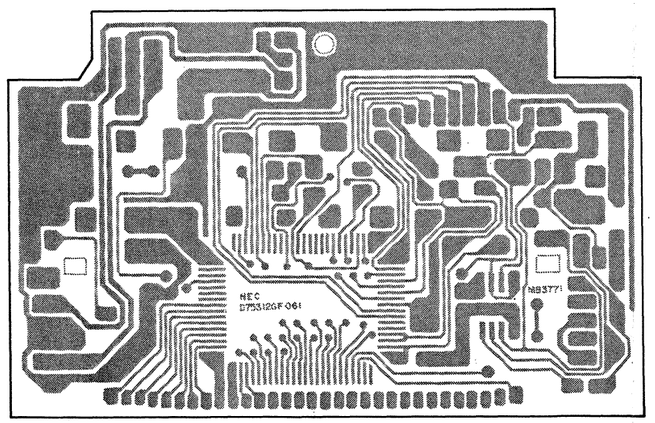
2. CD Changer Commander CMX-20

MAIN P.C. BOARD 4003614700

–TOP VIEW–



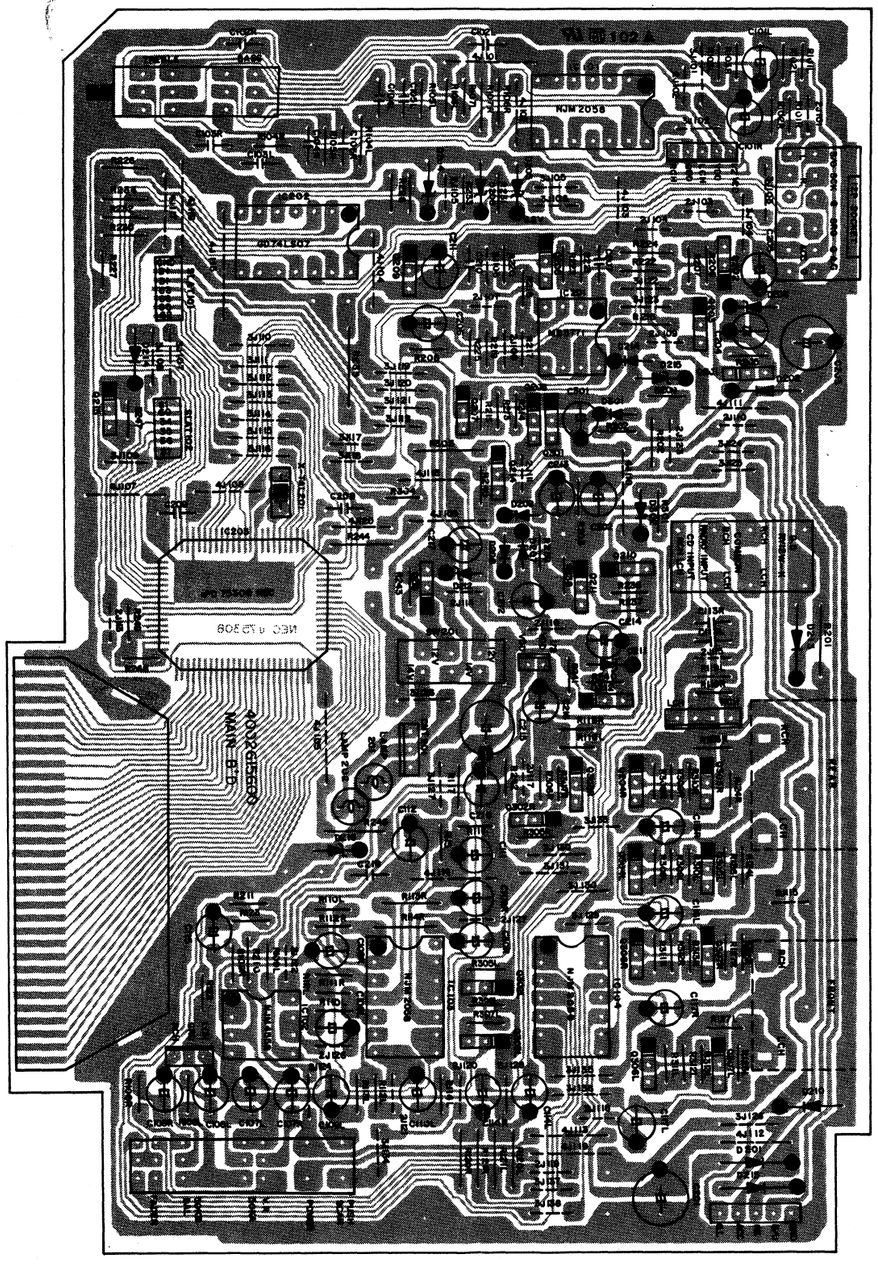
–BOTTOM VIEW–



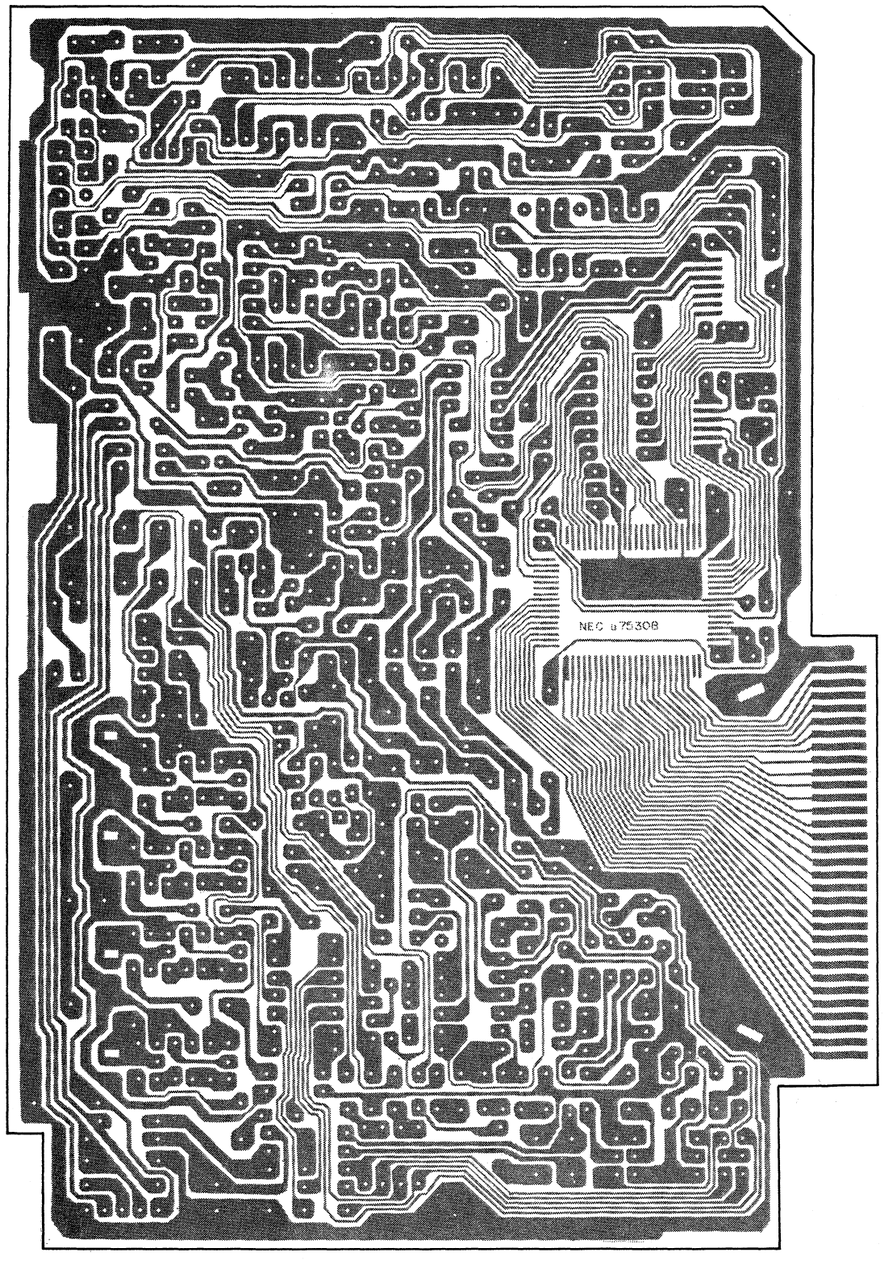
3. CD Changer Controller CRX-50

MAIN P.C. BOARD 4002615600

–TOP VIEW–



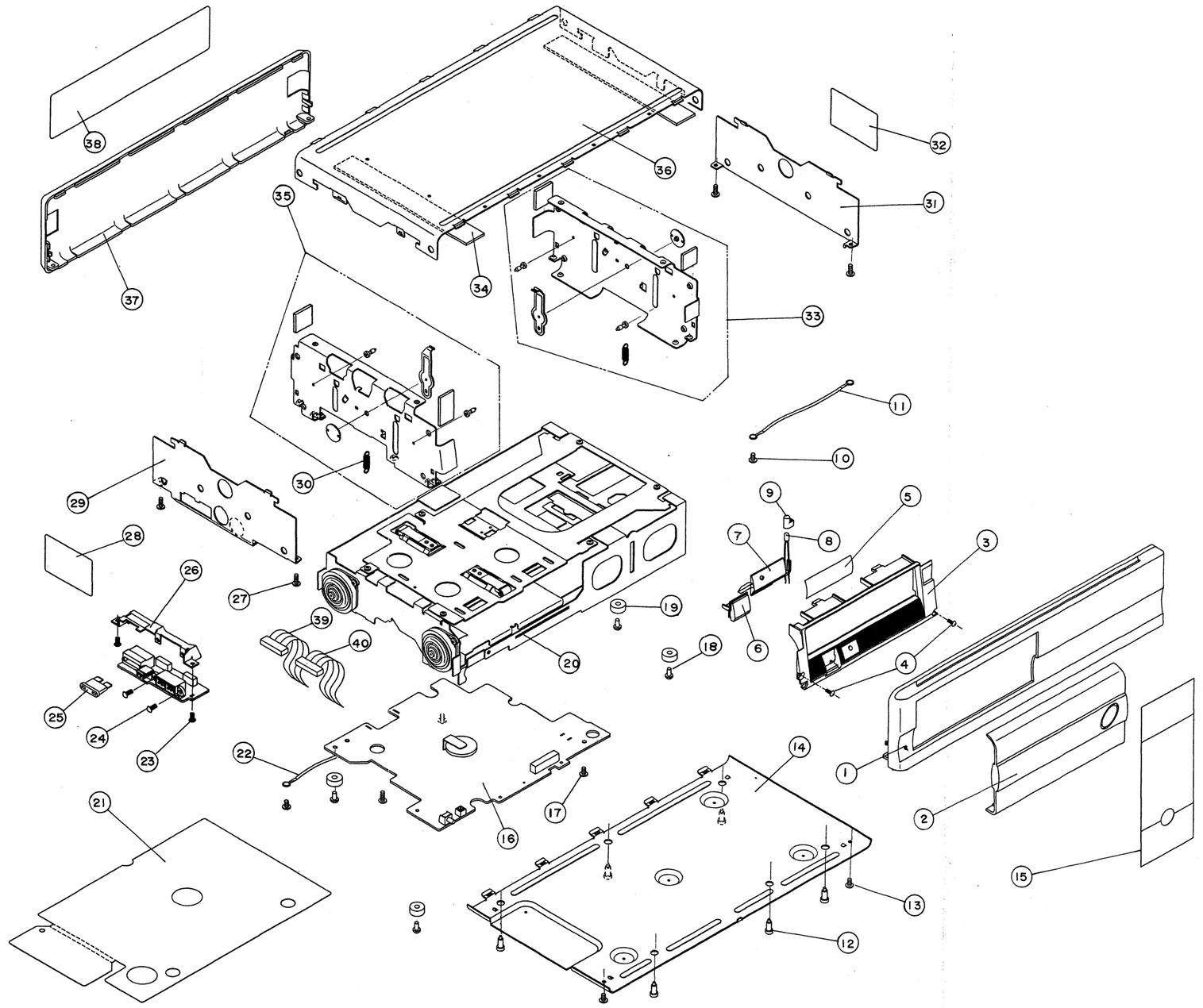
–BOTTOM VIEW–



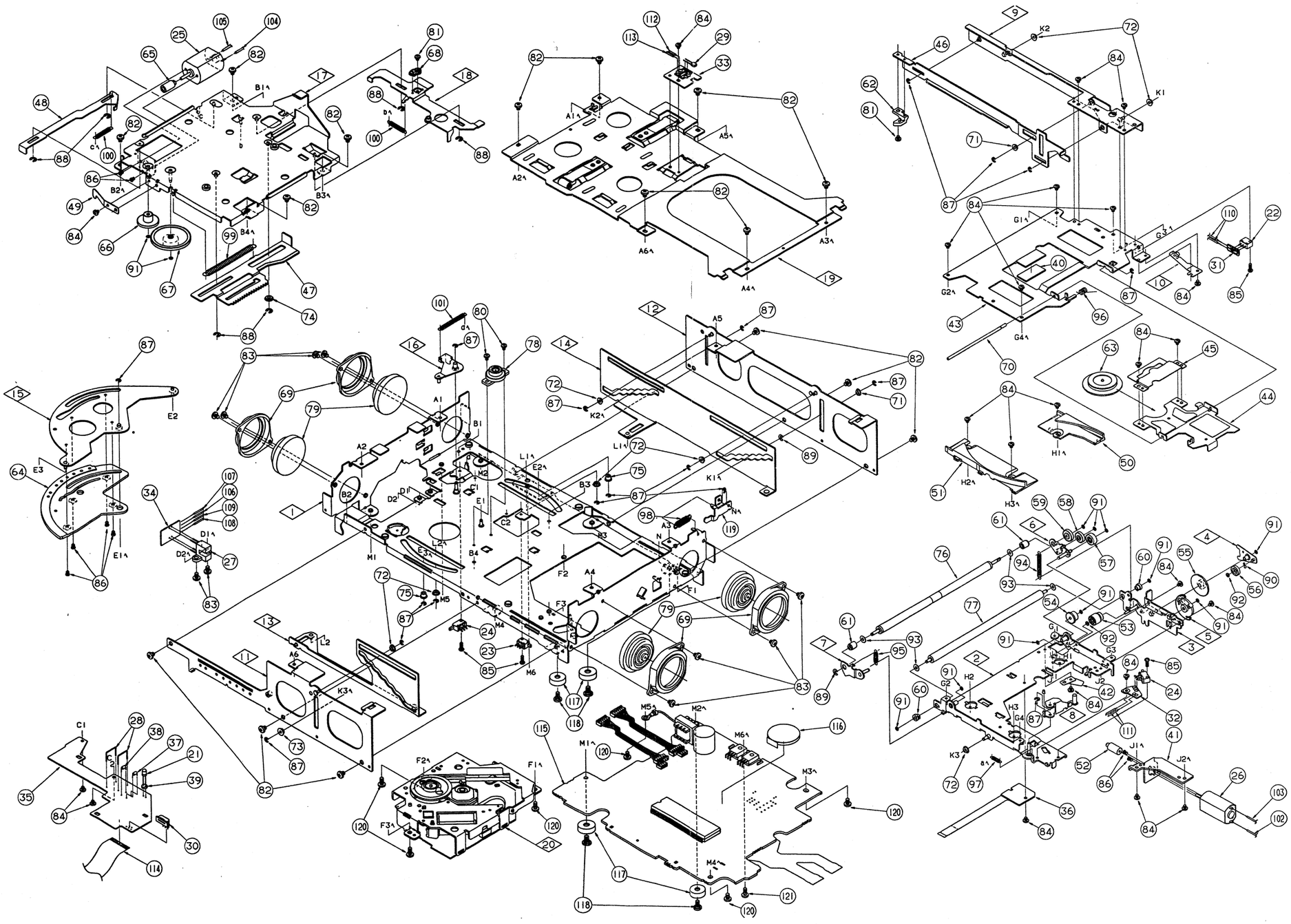
Exploded View & Parts Lists

1. Main Section (XM-700/XM-710)

Ref. No.	Part No.	Description	Q'ty
1	048502005311	Panel Front	1
2	048503001511	Door Slide (XM-700 Item)	1
	048503001514	Door Slide (XM-710 Item)	1
3	048502005611	Guide Magazine	1
4	8009120043	Screw, BM 2 x 4B	2
5	1858301101	Tape Aluminum	1
6	048543038811	Button Eject	1
7	8553013410	Illumination Power	1
8	2528204310	Pilot Lamp,14V/40mA, ϕ3 Wire Type (XM-700)	1
	2528205810	Pilot Lamp,14V/40mA, ϕ3 Wire Type (XM-710)	1
9	8728001010	Lamp Color Cap, 901G-20, Amber	1
10	8009126061	Screw, BM 2.6 x 6Y	1
11	4385000910	Wire Ground Ass'y Ring	1
12	8095250251	Screw, Transit	6
13	8009126053	Screw, BM 2.6 x 5B	2
14	046122631811	Case Low	1
15	9057083890	Label-Door Caution	1
16	5799000409	Main P.C. Board	1
17	8009126043	Screw, BM 2.6 x 4B	3
18	8009126051	Screw, BM 2.6 x 5Y	4
19	5799000411	Rubber	4
20	5728000310	Ass'y CD Changer Mechanism (XM-700 Item)	1
	5728000320	Ass'y CD Changer Mechanism (XM-710 Item)	1
21	4833003711	Insulation Cover	1
22		Not used	1
23	8009126061	Screw, BM 2.6 x 6Y	2
24	8019126061	Screw, PM 2.6 x 6Y	2
25	5508722615	Auto Fuse, 32V/3A, Violet	1
26	6503021310	Barket Socket	1
27	8019126061	Screw, PM 2.6 x 6Y	4
28	9057083910	Label Installation (LH)	1
29	046123013911	Case Side (LH)	1
30		Not used	2
31	046123013811	Case Side (RH)	1
32	9057083911	Label Installation (RH)	1
33	056538800110	Ass'y Damper Support (RH)	1
34	6705016210	Rubber Sponge Cushion, Bottom	2
35	056538800210	Ass'y Damper Support (LH)	1
36	046122631711	Case Upper (XM-700 Item)	1
	046122631714	Case Upper (XM-710 Item)	1
37	048502005411	Panel Rear	1
38	9057083920	Label-Wire Connection (XM-700 Item)	1
38	9057087660	Label-Wire Connection (XM-710 Item)	1



2. CD Changer Mechanism Section



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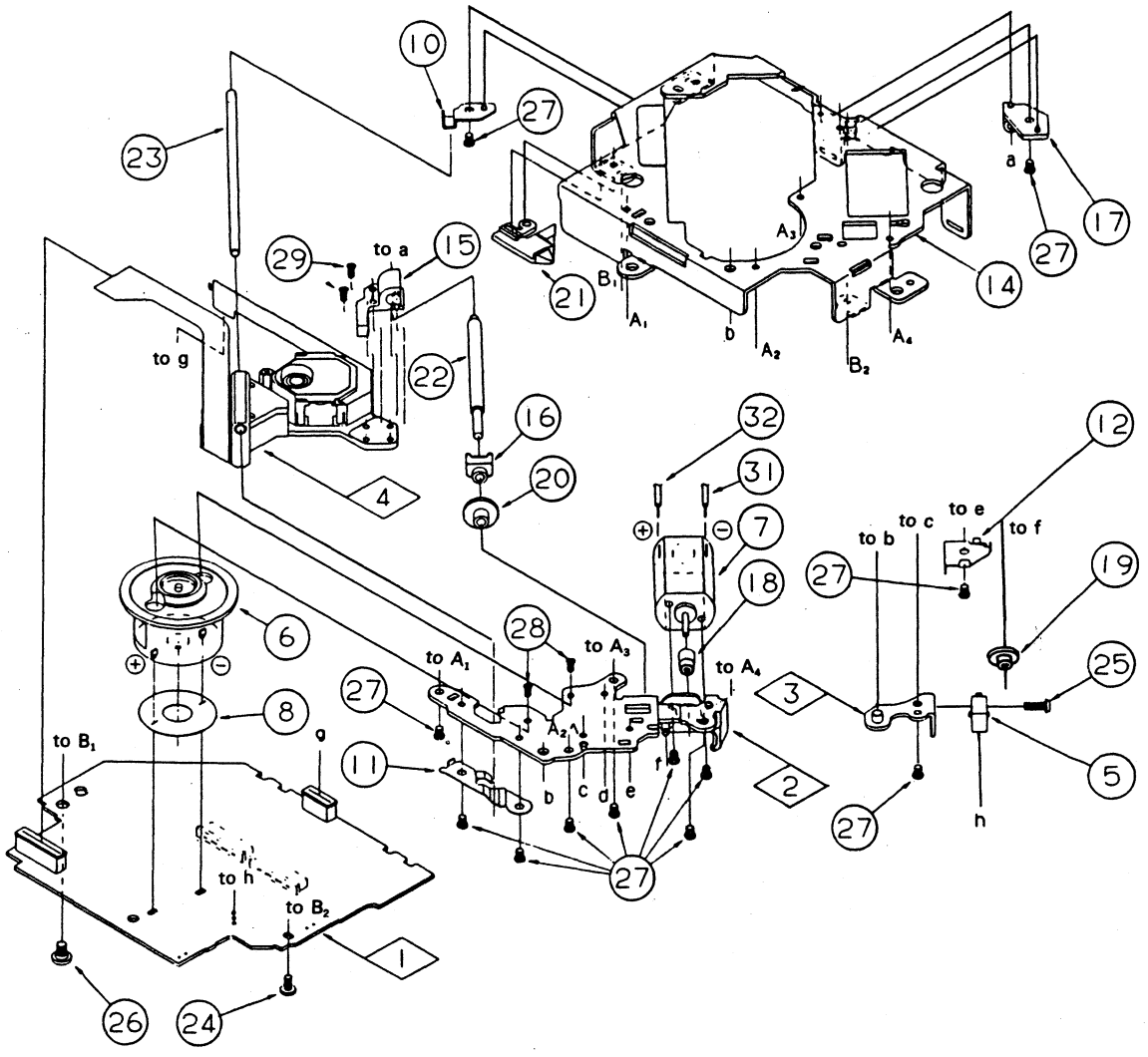
2. CD Changer Mechanism Section

Ref. No.	Part No.	Description	Mfr.s Part No.	Q'ty
1	5799000295	Chassis Ass'y	966-0154-04	1
2	5799000296	L-Plate Ass'y	966-0155-01	1
3	5799000297	H-G Plate Ass'y	966-0156-02	1
4	5799000298	Idler Arm Ass'y	966-0157-00	1
5	5799000299	H-Gear D-Ass'y	966-0158-00	1
6	5799000300	R-Arm A-Ass'y	966-0159-01	1
7	5799000301	R-Arm B-Ass'y	966-0160-01	1
8	5799000302	D-SW-Arm Ass'y	966-0161-01	1
9	5799000303	U-Plate B-Ass'y	966-0162-01	1
10	5799000304	SP-Plate Ass'y	966-0163-00	1
11	5799000305	Side-PL-F-Ass'y	966-0164-01	1
12	5799000306	Side-PL-R-Ass'y	966-0165-00	1
13	5799000307	Slide-PL-F-Ass'y	966-0166-01	1
14	5799000308	Slide-PL-R-Ass'y	966-0167-01	1
15	5799000309	Slide Rink Ass'y	966-0168-02	1
16	5799000310	SW-Plate Ass'y	966-0169-01	1
17	5799000311	MG-Plate Ass'y	966-0170-02	1
18	5799000312	MG-Lock-PL-Ass'y	966-0171-01	1
19	5799000313	Top Plate Ass'y	966-0172-03	1
20	5799000314	Drive Unit	966-0030-00	1
21	5799000315	Diode (GL380)	001-0563-00	1
22	5799000316	Switch	013-3808-11	1
23	5799000317	Switch	013-3808-12	1
24	5799000318	Switch	013-3863-00	2
25	5799000319	DC-Motor	020-0394-00	1
26	5799000320	DC-Motor	020-1504-00	1
27	5799000321	IC (RPI-373R)	051-1406-00	1
28	5799000322	Jumper Wire	060-0054-03	2
29	5799000323	Photo TR	060-0252-00	1
30	5799000324	Outlet Pocket	074-0909-05	1
31	5799000325	P.C. Board	099-9242-11	1
32	5799000326	P.C. Board	099-9242-12	1
33	5799000327	P.C. Board	099-9242-13	1
34	5799000328	P.C. Board	099-9242-14	1
35	5799000329	P.C. Board	099-9242-15	1
36	5799000330	P.C. Board	099-9157-01	1
37	5799000331	Film Resistor (1/4W 150ohm)	111-1511-03	1
38	5799000332	Film Resistor (1/4W 680ohm)	111-6811-03	1
39	5799000333	Spacer	345-4205-00	1
40	5799000334	Felt	347-3261-00	1
41	5799000335	H-Motor Plate	620-0208-01	1
42	5799000336	Thrust Plate A	620-0209-02	1
43	5799000337	Upper Plate A	620-0210-01	1
44	5799000338	Clamp Arm	620-0211-00	1
45	5799000339	Clamp Holder	620-0212-00	1
46	5799000340	D-Rod Plate	620-0213-00	1
47	5799000341	MG-Eject Plate	620-0214-01	1
48	5799000342	MG-Eject Tever	620-0215-01	1
49	5799000343	Thrust Plate B	620-0216-01	1
50	5799000344	Disc Guide A	621-0130-02	1
51	5799000345	Disc Guide B	621-0131-01	1
52	5799000346	H-Warm	621-0132-01	1
53	5799000347	H-Gear A	621-0133-01	1
54	5799000348	H-Gear B	621-0134-00	1
55	5799000349	H-Gear C	621-0135-00	1
56	5799000350	Idler Gear	621-0136-00	1
57	5799000351	H-Gear E	621-0137-00	1
58	5799000352	H-Gear F	621-0138-01	1
59	5799000353	H-Gear G	621-0139-01	1
60	5799000354	Roller Guide A	621-0140-00	2
61	5799000355	Roller Guide B	021-0141-00	2
62	5799000356	Disc Load Lever	621-0143-00	1

Ref. No.	Part No.	Description	Mfr.s Part No.	Q'ty
63	5799000357	Clamp Ring	621-0144-00	1
64	5799000358	Slide Gear	621-0145-02	1
65	5799000359	V-Warm	621-0146-02	1
66	5799000360	V-Gear A	621-0147-01	1
67	5799000361	V-Gear B	621-0148-00	1
68	5799000362	MG-Stopper	621-0149-01	1
69	5799000363	Damper Holder	621-0150-01	4
70	5799000364	Clamp Arm Shaft	622-0760-00	1
71	5799000365	Roller A	622-0761-00	2
72	5799000366	Roller B	622-0762-00	8
73	5799000367	Roller C	622-0763-00	1
74	5799000368	Eject-PL-Roller	622-0764-01	1
75	5799000369	SL-Rink Roller	622-0765-00	2
76	5799000370	Disc Roller A	629-0029-01	1
77	5799000371	Disc Roller B	629-0030-01	1
78	5799000372	Gear Damper	629-0031-00	1
79	5799000373	Damper	629-0032-00	4
80	5799000374	Special Screw (M2 x 3)	714-2003-11	2
81	5799000375	Machine Screw (M2 x 3)	714-2003-81	2
82	5799000376	Machine Screw (M2.6 x 3)	714-2603-81	18
83	5799000377	Special Screw (M2.6 x 4)	714-2604-81	10
84	5799000378	Special Screw (M2 x 2.3)	716-0484-02	20
85	5799000379	Special Screw (M2 x 5.7)	716-0791-00	2
86	5799000380	Precision Screw	738-2025-17	7
87	5799000381	E-Ring (M1.5)	743-1500-10	18
88	5799000382	E-Ring (M2.0)	743-2000-10	6
89	5799000383	E-Ring (ϕ1.5 x ϕ5, t0.4)	744-0031-10	2
90	5799000384	Washer (ϕ1.5 x ϕ5, t0.04)	745-0737-00	1
91	5799000385	Washer (1.6 x ϕ3.2, t0.25)	746-0761-00	12
92	5799000386	Washer (ϕ1.6 x ϕ3.2, t0.5)	746-0762-00	2
93	5799000387	Washer (ϕ2.1 x ϕ5.6, t0.25)	746-0829-00	4
94	5799000388	R-Arm Spring A	750-2895-00	1
95	5799000389	R-Arm Spring B	750-2896-00	1
96	5799000390	C-Arm Spring	750-2897-00	1
97	5799000391	D-SW-Arm Spring	750-2898-00	1
98	5799000392	Clamp Spring	750-2899-01	1
99	5799000393	EJ-Plate Spring	750-2900-00	1
100	5799000394	MG-Lock Spring	750-2901-01	2
101	5799000395	SW-Plate Spring	750-2923-00	1
102	5799000396	Vinyl Coat Wire	801-4912-60	1
103	5799000397	Vinyl Coat Wire	802-4911-60	1
104	5799000398	Vinyl Coat Wire	803-4907-60	1
105	5799000399	Vinyl Coat Wire	804-4907-60	1
106	5799000400	Special Lead	816-2128-00	1
107	5799000401	Special Lead	816-2129-00	1
108	5799000402	Special Lead	816-2130-00	1
109	5799000403	Special Lead	816-2131-00	1
110	5799000404	Special Lead	816-2132-00	1
111	5799000405	Special Lead	816-2133-00	2
112	5799000406	Special Lead	816-2134-00	1
113	5799000407	Special Lead	816-2135-00	1
114	5799000408	Special Lead	816-2136-01	1
115	5799000409	Main P.C. Board Ass'y	099-9416-00	1
116	5799000410	Battery	088-0017-01	1
117	5799000411	Rubber Part	345-6975-00	4
118	5799000412	Screw	716-1503-00	4
119	5799000413	Clamp Link	620-0240-00	1
120	5799000414	Special Screw	716-0761-01	6
121	5799000415	Machine Screw	714-2606-81	1
122	5799000416	Special Screw		2
123	5799000417	Special Screw		3

3. CD Changer Driver Unit Section



Ref. No.	Part No.	Description	Mfr.s Part No.	Q'ty
1		Float P.W.B	099-9366-01	1
2		DR-MO-Bracket Ass'y	966-0182-01	1
3		SW-Plate Ass'y	966-0150-02	1
4		Pick-up U-Ass'y	969-0001-00	1
5		Switch	013-3808-11	1
6		DC-Motor	020-1505-00	1
7		DC-Motor	020-1507-00	1
8		Motor Sheet	347-3270-00	1
9		Not used		
10		Hold Plate	620-0202-00	1
11		Slide S-Plate	620-0328-00	1
12		SP-Plate A	620-0204-03	1
13		Not used		
14		Drive Plate	620-0388-00	1
15		Screw, Holder	621-0123-00	1
16		L-S-Holder A	621-0168-01	1

Ref. No.	Part No.	Description	Mfr.s Part No.	Q'ty
17		L-S-Holder B	621-0169-01	1
18		DR-Gear A	621-0170-01	1
19		DR-Gear B	621-0171-01	1
20		DR-Gear C	621-0172-01	1
21		FPC-Guide	621-0173-00	1
22		Lead Screw	624-0011-99	1
23		Slide Shaft	624-0003-00	1
24		Machine Screw, M2 x 4	714-2004-81	1
25		Screw	716-0719-00	1
26		P.W.B Screw	716-1445-01	1
27		Screw	716-1468-00	1
28		Precision Screw	739-1725-17	1
29		Precision Screw	739-1730-17	1
30		Not used		
31		Vinyl-Cost-Wire	800-4904-60	1
32		Vinyl-Cost-Wire	802-4904-60	1

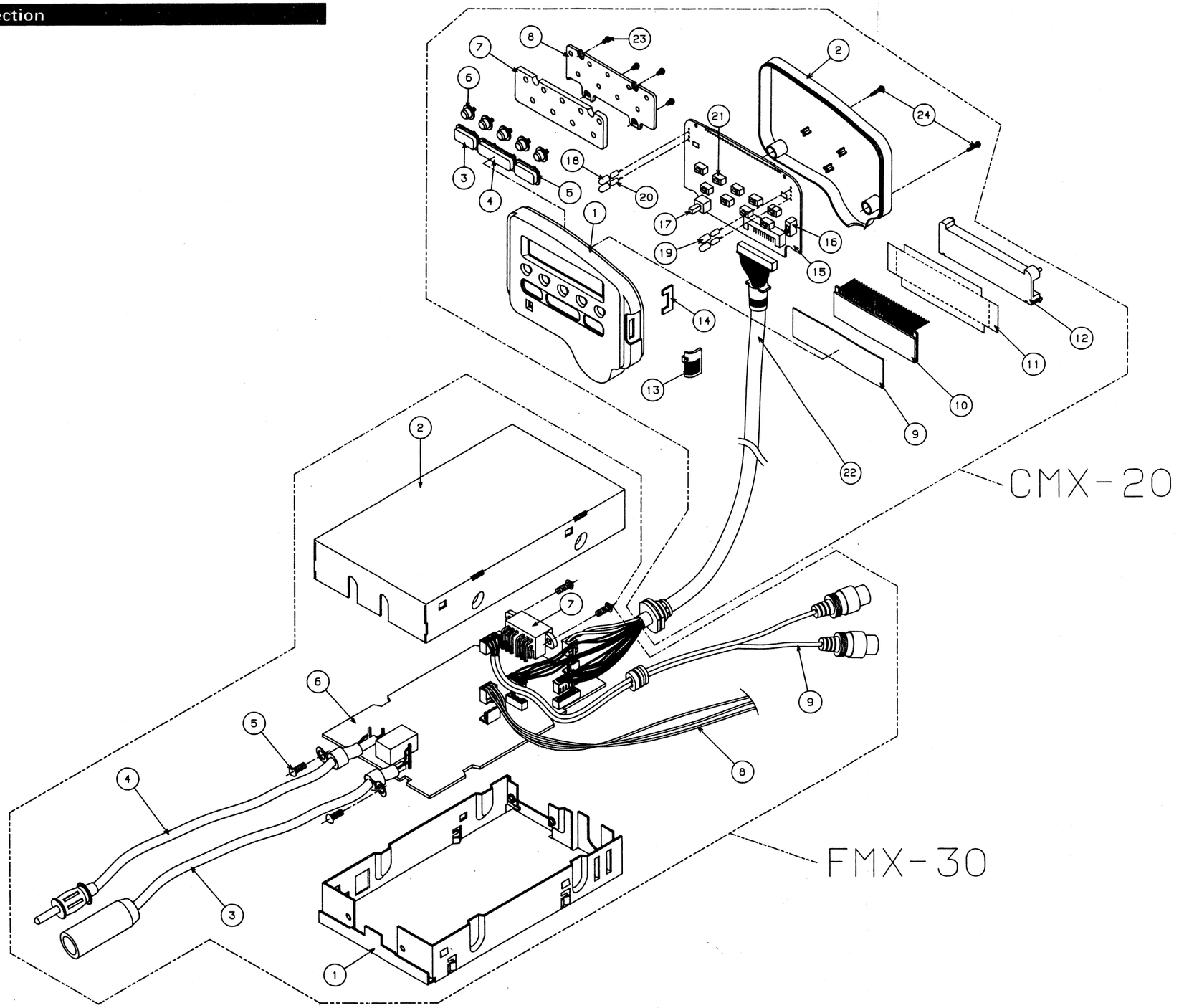
4. FM Modulator & CD Changer Commander Section

1) FM Modulator Section (FMX-30)

Ref. No.	Part No.	Description	Q'ty
1	6503020910	Case Low	1
2	046503021011	Cover Upper	1
3	4353001912	Antenna Receptacle Ass'y	1
4	4353002012	Antenna Plug Ass'y	1
5	8009126051	Screw, BM 2.6 x 5Y	4
6	4002614900	Main P.C. Board	1
7	4448003411	Socket 12P	1
8	4358503910	Connector Ass'y 3P	1
9	4328206210	RCA Cord Ass'y 2P, 5395-04	1

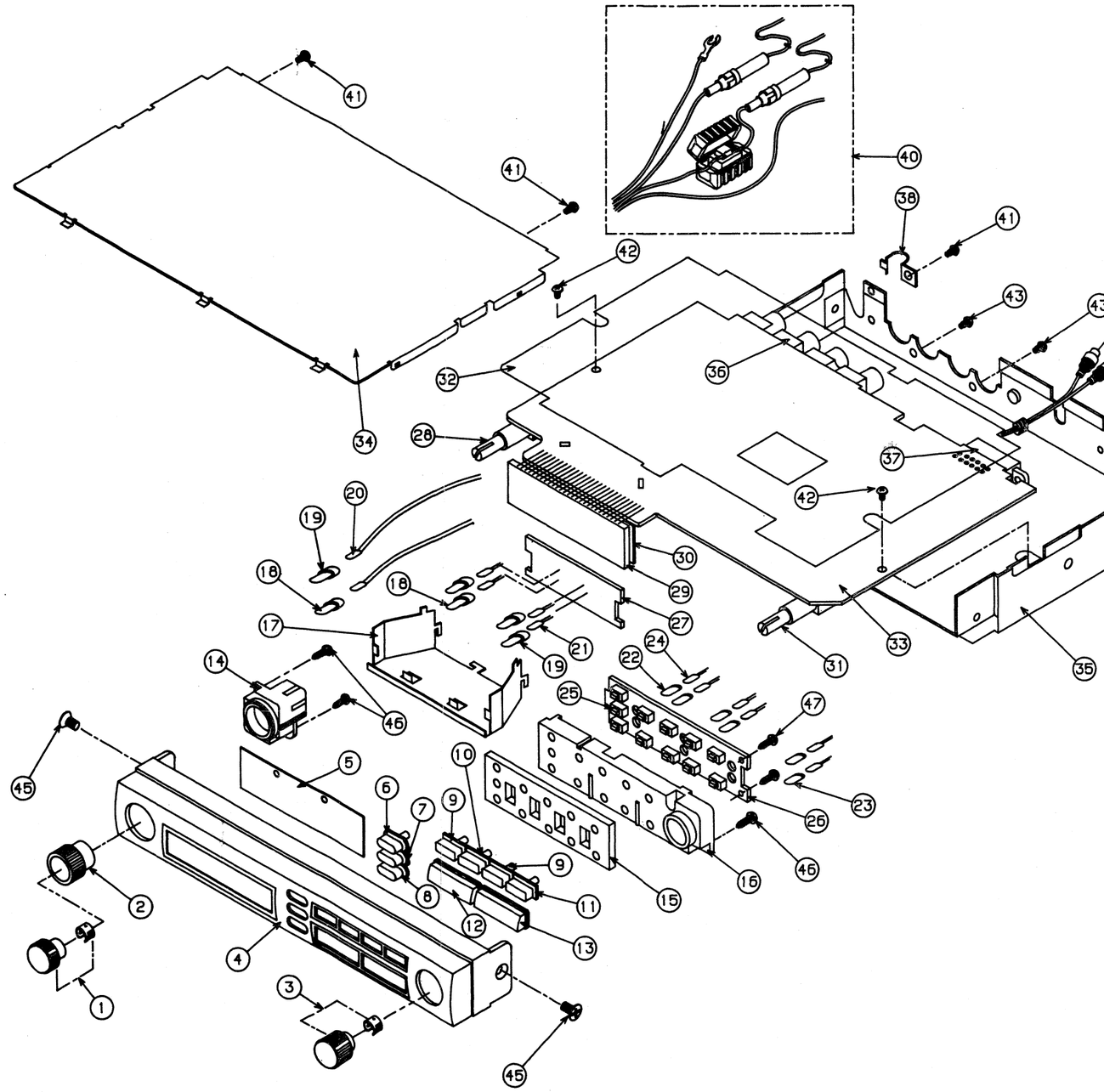
2) CD Changer Commander Section (CMX-20)

Ref. No.	Part No.	Description	Q'ty
	058502005514	**Ass'y, PANEL FRONT**	
1	048502005511	Case Upper, Top	1
2	048503001611	Case Low	1
3	048545086211	Button Function - DISC	1
4	048545086111	Button Function - Track	1
5	048545086212	Button Function - PLAY/STOP	1
6	8545086210	Button Function - A	5
7	6705016110	Sponge Button	1
8	8553013610	Guide Button	1
9	8555035510	Window LCD	1
10	2338029929	LCD, LE-0705BP	1
11	8533007310	Filter CD	1
12	8555035310	Reflector LCD	6
13	8543038910	Knob Silde	2
14	8553013620	Stopper Knob	1
15	4003614700	Main P.C. Board	1
16	3238011110	Switch Slide, ESD11V120	1
17	4628501001	Switch Push, PKA-2203	3
18	8728000180	Lamp Color Cap, 910G-20, Amber	2
19	8728001410	Lamp Color Cap, Pilot, Green	2
20	2528206010	Lamp, 12V/60mA, ϕ3, 20mm, Wire Type	4
21	4658003510	Tact Switch, SKHLA018A	9
22	4358512910	Connector Ass'y 12P, GIL-S-12, DL	1
23	8119220051	Screw, #2PT 2 x 5Y	4
24	8109720093	Screw, #2FT 2.0 x 9B	2



5. CD Changer Controller Section (CRX-50)

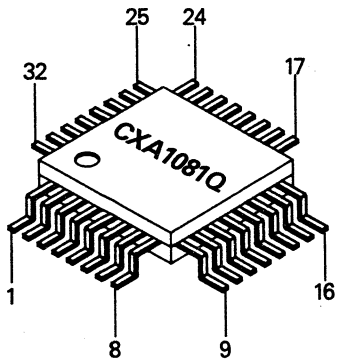
Ref. No.	Part No.	Description	Q'ty
	058502005911	**Ass'y, PANEL FRONT**	
4	048502005911	Panel Front	1
5	8555036210	Window LCD	1
6	048545086811	Button Function - PLAY/STOP	1
7	048545086812	Button Function - P.PLAY	1
8	048545086813	Button Function - SHUFF	1
9	048545086911	Button Function - PROG, CHECK	2
10	048545086912	Button Function - SET/CLEAR	1
11	048545086913	Button Function - RPT/REPEAT	1
12	048545087011	Button Function - DISC	1
13	048545087012	Button Function - TRACK	1
14	8555036010	Reflector Illumination	1
15	6705016710	Sponge	1
16	8553013810	Reflector	1
46	8119220061	Screw #2PT 2 x 6Y	3
1	8545087110	Knob IN-Volume	1
2	8545087210	Knob OUT	1
3	8545087310	Knob IN-Tone	1
17	6505113810	Cover LCD	1
18	8728000170	Lamp Color Cap, 910G-20, Amber	3
19	8725000110	Lamp Color Cap, 901N-30, Green	3
20	2528201011	Lamp, 14V/40mA, ϕ3, Wire Type	2
21	2528201111	Lamp, 14V/40mA, ϕ3, PCB Type	4
22	8728000130	Lamp Color Cap, A3006-G6D	3
23	8728000180	Lamp Color Cap, 901G-20, Amber	3
24	2528205910	Lamp, 12V/40mA, 20mm, PCB Type	6
25	4658003510	Tact Switch, SKHLAK018A	11
26	4003614900	Front P.C. Board	1
27	4002615610	Lamp P.C. Board	1
28	3228016410	Potentiometer, TP98J26NA-L	1
29	2338029929	LCD, LE-0705BP	1
30	8555036310	Filter LCD	1
31	3228016510	Potentiometer, EVU-4XA205B15, 100KB	1
32	4833003910	Cover Insulation	1
33	4002615610	Main P.C. Board	1
34	6123014010	Cover Top	1
35	6123408010	Cover Bottom	1
36	4438108910	RCA Jack 2P (Gold)	2
37	4448003411	Socket 12P	1
38	6515011210	Holder Power Cord	1
39	4328206310	RCA Cord Ass'y 2P, Line OUT	1
40	4358104702	Power Connector Ass'y 4P	1
41	8119430051	Screw, SAM 3 x 5Y	3
42	8119430059	Screw, SAM 3 x 5SN	2
43	8119930081	Screw, #2PS 3 x 8Y	2
44	8009126061	Screw, BM 2.6 x 6Y	2
45	8029130063	Screw, FM 3 x 6B	2
47	8118220101	Screw, #2PT 2 x 10Y	2



Lead Identification & Internal Diagram

■ CXA1081Q (RF Amp. for CD Player/IC1)

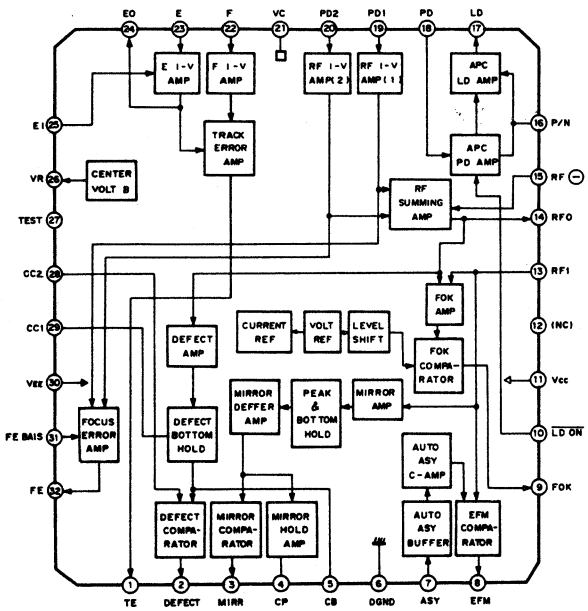
1) Outward From



2) Functions

- RF Amplifier
- Focus Error Amp.
- Tracking Error Amp.
- APC Circuit
- Auto Asymmetry Control Amp.
- Focus OK Detector
- Mirror Detector
- Defect Detector
- EFM Comparator

3) Block Diagram

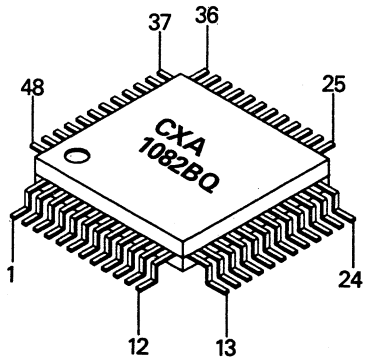


4) Terminal Description

Pin No.	Port Name	I/O	Explanation
1	TE	O	Output of tracking error amp.
2	DEFECT	O	Output of DEFECT comparator.
3	MIRR	O	Output of MIRR comparator.
4	CP	I	A teminal used to connect the MIRR hold capacitor. A non-reverse input terminal for MIRR comparator.
5	CB	I	A teminal used to connect the DEFECT bottom hold capacitor.
6	DGND	–	When two + of – source voltage is used GND. When a single source voltage is used GND(VEE).
7	ASY	I	Input of auto asymmetry control.
8	EFM	O	Output of EFM comparator.
9	FOK	O	Output of focus OK comparator.
10	LD ON	I	A terminal which turns the laser diode(LD) ON/OFF.
11	Vcc	–	Positive power terminal.
12	NC	–	Unused terminal.
13	RF1	I	A terminal through output of the RF summing amp. is ibputted by capacity coupling.
14	RFO	O	Output of RF summing amp. and a point where Eye pattern is checked.
15	RF-	I	Feedback input of RF summing amp..
16	P/N	I	A terminal used to select P.sub or N-sub mode of laser diode (LD).
17	LD	O	Output of APC LD amp.
18	PD	I	Input of APC PD amp.
19	PD1	I	Reverse input of RF I-V amp. (1) Connected to Terminals A and C on the photodiode to receive current input.
20	PD2	I	Reverse input of RF I-V amp. (2) Connected to Terminals B and D on the photodiode to receive current input.
21	VC	I	When two + or – source voltage is used GND. When a single source voltage is used VR(connected to 14-pin).
22	F	I	Reverse input of F I-V amp.. Connected to Terminals F on the photodiode to receive current input.
23	E	I	Reverse input of E I-V amp.. Connected to Terminals E on the photodiode to receine current input.
24	EO	O	Output of E I-V amp.
25	E1	I	Feedback input of E I-V amp.. Used to control gain of E I-V amp..
26	VR	O	Output of two(VCC+VEE) direct current and voltage.
27	TEST	–	Open
28	CC2	I	A terminal to receive DEFECT bottom hold output is inputed by capacity coupling.
29	CC1	O	Output of DEFECT bottom hold.
30	VEE	–	When - or - power source is used Negative power terminal. When a single power source is used GND terminal.
31	FE BIAS	I	Bias terminal on non-reverse side of focus error amp.. Used to control CRM of focus error amp..
32	FE	O	Output of focus error amp..

■ CXA1082BQ (Servo Signal Processor for CD/IC2)

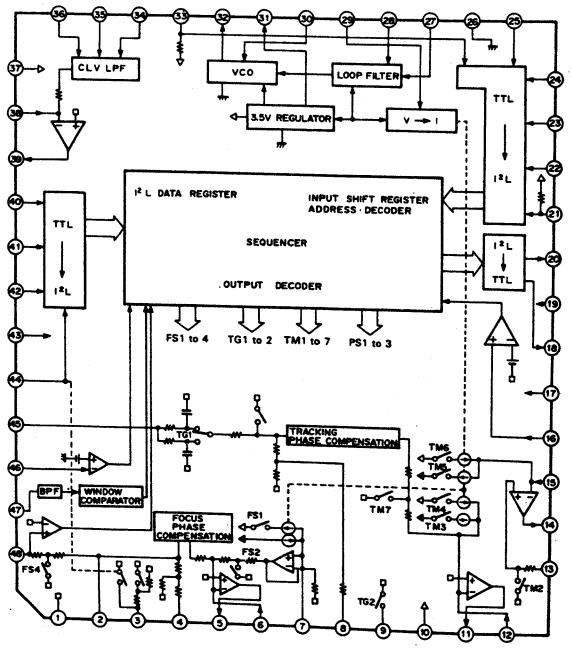
1) Outward From



2) Functions

- Focus Servo Control
- Tracking Servo Control
- Sled Servo Control
- Spindle Servo LPF Drive Amplifier
- EFM Clock Playback PLL. Loop Filter 8.64MHz VCO.
- Auto Sequencer ; RAM incorporated

3) Block Diagram

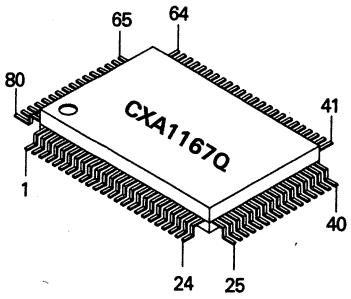


4) Terminal Description

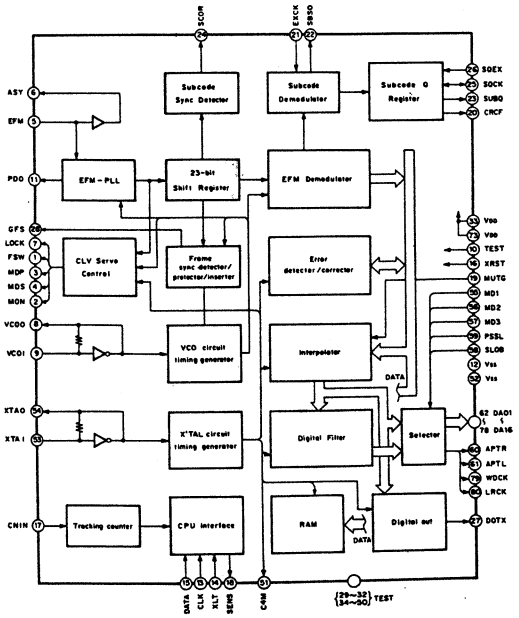
Pin No.	Port Name	Explanation
1		
2	FGD	Insert a capacitor between this terminal and the terminal No 3 when dropping the high-pass gain of the focus serve.
3	FS3	Switches the high-pass gain of the focus servo by turning FS3 ON/OFF.
4	FLB	Time constant external pin for rising low bandwidth of the focus servo.
5	FEO	focus drive output.
6	FE-	Inverse input pin for the focus amplifier.
7	SRCH	Time constant external terminal creating a focus search waveform.
8	TGU	Time constant external terminal for switching tracking high pass gain.
9	TG2	Time constant external terminal for switching tracking high pass gain.
10	AVcc	
11	TAO	Tracking drive output.
12	TA−	Tracking amplifier inverse input.
13	SL+	Sled amplifier non-inverse input.
14	SLO	Sled drive output.
15	SL−	Sled amplifier inverse input.
16	SSTOP	Terminal for ON/OFF detection signal of the disk innermost track detecting limit switch.
17	FSET	Terminal for setting the phase compensation peak of focus tracking and fO of CLV LPF.
18	SENS	Outputs FZC, AS, TZC, SSTOP and BUSY by command from CPU.
19	AVEE	
20	C. OUT	Tracks counting signal output.
21	DIRC	Used fot jumping by 1 track.
22	XRST	Reset input terminal reset at "B".
23	DATA	Serial data input from the CPU.
24	XLT	Latch input from the CPU.
25	CLK	Serial data transfer clock input from the CPU.
26	DGND	
27	BW	Time constant external terminal for the loop filter.
28	PD1	Input for the CX23035/CXD1135 phase comparator output PDO.
29	ISET	Flows a current to determine a focus search track jump and thred kick height.
30	VCOF	The free-running frequency of VCO is almost propotional to the resistance value between this pin and pin 31.
31	3.5V	
32	C864	8.64MHz VCO output.
33	LOCK	The sled crush preventive circuit works at "L".
34	MDP	Connect the MDP terminal of the CX23035/CXD1135.
35	MON	Connect the MON terminal of the CX23035/CXD1135.
36	FSW	LPF time constant external terminal for a CLV servo error signal.
37	DVcc	
38	SPDL-	Spindle drive amplifier inverse input.
39	SPDLO	Spindle drive output.
40	WDCK	Clock input for auto sequence normally 88.2kHz is input.
41	FOK	FOK signal input.
42	MIRR	Mirror signal input.
43	DVEE	
44	DFCT	Detect signal input the detect preventive circuit at"H".
45	TE	Tracking error signal input.
46	TZC	Tracking zero cross comparator input.
47	ATSC	ATSC detecting window comparator input.
48	FE	Focus error signal input.

■ CXA1167Q (CD Digital Signal Processing/IC3)

1) Outward From



2) Block Diagram



3) Terminal Description

Pin No.	Port Name	I/O	Explanation
1	FSW	O	Output terminal used to select time constant of output filter for spindle motor.
2	MON	O	Output terminal to control ON/OFF operation of spindle motor.
3	MDP	O	Drive output of spindle motor A terminal used to make rough control in CLV-S mode and phase control in CLV-P mode.
4	MDS	O	Drive output of spindle motor A terminal used to control speed in CLV-P mode..
5	EFM	I	A terminal used to receive EFM signal from RF amp.
6	ASY	O	Output terminal to control slice level of EFM signal.
7	LOCK	O	A terminal which samples GFS signal at WFCK/16. It sends "H"when sampling result is "H"and "L" when "L"is sampled 8 times continously.
8	VCOO	O	When VCO locks to EFM signal, the frequency becomes 8.6436MHz.(17.2872MHz during double speed playback).
9	VCOI	I	VCO input.
10	TEST	I	(0V)
11	PDO	O	Output of phase comparison between EFM signal and VCO/2.
12	Vss	–	GND (0V)
13	CLK	I	A terminal whitch receives serial data transfer clock from CPU. The terminal latches data at the leading edge of the clock.
14	XLT	I	Latch input of data from CPU. The terminal latches data of 8-bit shift register(serial data sent from CPU) into resisters.
15	DATA	I	Input of serial data sent from CPU.
16	XRST	I	Input of system reset. System is reset with "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	A terminal whitch outputs internal data corresdonding to the address.
19	MUTG	I	Input of muting. When ATTN of internal resister A is "L". MUTG is in normal mode with "L". If it is turned "H"no sound is produced.
20	CRCF	O	A terminal which outputs results of CRC check on the sub-code "Q".
21	EXCK	I	Clock input for serial output of sub-code.
22	SBSO	O	Serial output of sub-code.
23	SUBQ	O	Output of sub-code "Q".
24	SCOR	O	Output of sub-code sink "S0+S1".
25	SQCK	I/O	Clock to read out sub-code "Q ".
26	SQEX	O	Selective input of SQCK.
27	DOTX	O	Digital output(WFCK is outputted when DO is turned off).
28	GFS	O	Output locked frame sink.
29 32	TEST	I	"H"or "L" is fixed.(Do not open.)
33	VDD	–	Power Supply (+5V).
34 50	TEST	I	"H"or "L" is fixed.(Do not open.)
51	C4M	O	Divider output for crystal. f=4.2336MHz (8.4672MHz at double speed playback.)
52	Vss	–	GND (0V)
53	XTAL	I	Input to crystal oscillator circuit. Depending on the mode the frequency is either f=8.4672 or 16.9344MHz. (16.9344MHz at double speed playback.)
54	XTAO	O	Output from crystal oscillator circuit. Depending on the mode the frequency is either f=8.4672 or 16.9344 MHz. (16.9344MHz at double speed playback.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Code switch input for audio data output. 2's complement output when at"L", offset binary output when at"H".
59	PSSL	I	Mode switch input for audio data output. Serial output when at"L", Parallel output when at "H".
60	APTR	O	A terminal used to control aperture correction. When R-ch is selected the terminal is in the "H"mode.
61	APTL	O	A terminal used to control aperture correction. When L-ch is selected the terminal is in the "H"mode.
62	DA01	O	Output of DA01(LSB of parallel sound data) when PSSL= at "H". The terminal outputs C1F1 when PSSL = "L"
63	DA02	O	Output of DA02 when PSSL = at "H". Output of C1F2 when PSSL = at "L".
64	DA03	O	Output of DA03 when PSSL = at "H". Output of C2F1 when PSSL = at "L".

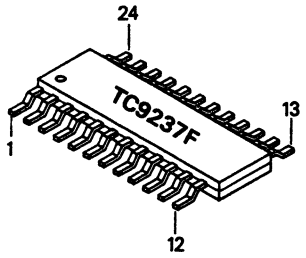
Pin No.	Port Name	I/O	Explanation
65	DA04	O	Output of DA04 when PSSL = at "H". Output of C2F2 when PSSL = at "L".
66	DA05	O	Output of DA05 when PSSL = at "H". Output of C2FL when PSSL = at "L".
67	DA06	O	Output of DA06 when PSSL = at "H". Output of C2PO when PSSL = at "L".
68	DA07	O	Output of DA07 when PSSL = at "H". Output of RFCK when PSSL = at "L".
69	DA08	O	Output of DA08 when PSSL = at "H". Output of WFCK when PSSL = at "L".
70	DA09	O	Output of DA09 when PSSL = at "H". Output of PLCK when PSSL = at "L".
71	DA10	O	Output of DA10 when PSSL = at "H". Output of UGFS when PSSL = at "L".
72	DA11	O	Output of DA11 when PSSL = at "H". Output of GTOP when PSSL = at "L".
73	VDD	-	Power Supply (+5V)
74	DA12	O	Output of DA12 when PSSL = at "H". Output of RAOV when PSSL = at "L".
75	DA13	O	Output of DA13 when PSSL = at "H". Output of C4LR when PSSL = at "L".
76	DA14	O	Output of DA14 when PSSL = at "H". Output of BCLK when PSSL = at "L".
77	DA15	O	Output of DA15 when PSSL = at "H". Output of BCLK when PSSL = at "L".
78	DA16	O	Output of DA16(MSB of parallel voice data) when PSSL = at "H". Output of DATA when PSSL = at "L"
79	WDCK	O	Strobe signal output. Output is 176.4kHz when DF is ON. (352.8kHz in double-speed playback) Output is 88.2kHz when DF is OFF (176.4kHz in double-speed playback).
80	LRCK	O	Strobe signal output. Output is 88.2kHz when DF is ON. (176.4kHz at double-speed playback) Output is 44.1kHz when DF is OFF (88.2kHz in double-speed playback).

4) Note ;

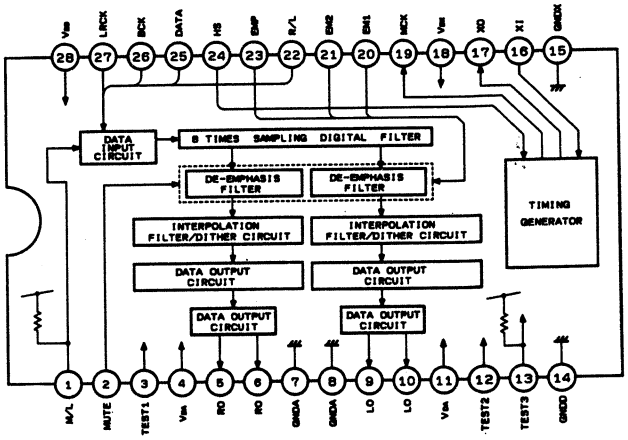
C1F1 : Monitor output reporting status of error correction for C1 decoder.
C1F2 :
C2F1 : Monitor output reporting status of error correction for C2 decoder.
C2F2 :
C2FL : Output of correction status. C2FL is set to"H"when the C2 sequence presently being corrected becomes impossible to correct.
C2PO : Display output of the C2 pointer. It is synchronized with the audio data output.
RFCK : Read frame clock output. 7.35kHz of the crystal system. (14.7kHz at double speed playback.)
WFCK : Write frame clock output. 7.35kHz when locked by the crystal system. (14.7kHz at double speed playback.)
PLCK : Output VCO/2. f=4.3218MHz when locked by the EFM signal. (8.6436MHz at double speed playback.)
UGFS : Output for unprotected frame sync protection.
GTOP : Output for display of status of frame sync protection.
RAOV : Output for display of either RAM overflow or underflow for ± 4 frame jitter absorption.
C4LR : Strobe signal. 352.8kHz (705.6kHz at double speed playback) when DF is on, 176.4kHz (352.8kHz at double speed playback) when DF is off.
BCLK : Inverse output of bit clock.
BCLK : Bit clock output. 4.2336MHz(8.4672 at double speed playback) when DF is on, 2.1168MHz(4.2336MHz at double speed playback) when DF is off.
DATA : Serial data output of audio signal.

■ TC9237F (DA Convertor Filter/IC4)

1) Outward From



2) Block Diagram



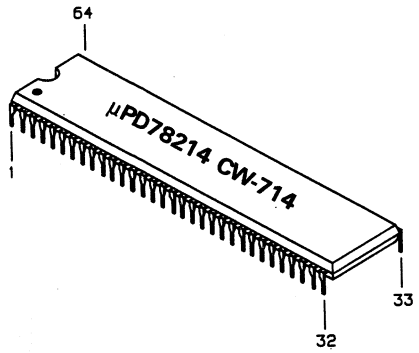
3) Terminal Description

Pin No.	Port Name	I/O	Explanation
1	M/L	I	MSB First/LSB First select terminal for input data. When turned to "H", the terminal is compatible with MSB First. When turned to "L", it is compatible with LSB First.
2	MUTE	I	Muting terminal. When turned to "H",muting is available.
3	TEST1	I	TEST terminal. Normally, the terminal is is turned to "H".
4	VDA	–	Analog power supply terminal for DA converter(for R-CH)
5	RO	O	Forward output terminal for right channel data.
6	RO	O	Reverse output terminal for right channel data.
7	GNDA	–	Analog ground terminal for DA converter(for R-CH)
8	GNDA	–	Analog ground terminal for DA converter(for L-CH)
9	LO	O	Reverse output terminal for left channel data.
10	LO	O	Forward output terminal for left channel data.
11	VDA	–	Analog power supply terminal for DA converter(for L-CH)
12	TEST2	I	TEST terminal. Normally, the terminal is is turned to "L".
13	TEST3	I	TEST terminal. Normally, the terminal is is turned to "H". or open.
14	GND	–	Logic ground terminal.
15	GNDX	–	Oscillator ground terminal.
16	XI	I	Crystal oscillator terminal. Crystal oscillator is connected to this terminal to
17	XO	O	generate required clocks(384 fs) to the system.
18	VDX		Oscillator power supply terminal.
19	MCK		System clock output terminal. (384 fs)

Pin No.	Port Name	I/O	Explanation
20 21	EM1 EM2	I I	Deemphassis filter mode select terminal. EM1 L L H H EM2 L H H L Mode (fs select) 44.1kHz 32kHz 48kHz
22	R/L	I	R/L channel data select terminal. A terminal used to select input of L/R channel data. R/L Input: L → LRCK L: Right-channel data; LRCK H: Left-channel data R/L Input: R → LRCK L: Left-channel data; LRCK H: Right-channel data
23	EMP	I	Deemphassis filter ON/OFF select terminal. When the terminal is turned to "L", the deemphassis filter is turned ON. When turned to "L", the deemphassis filter is turned OFF.
24	HS	I	Standard/Multiple speed mode select terminal. "H" : Standard-speed operation "L" : Multiple-speed operation
25	DATA	I	Data input terminal.
26	BCK	I	Bit clock input terminal.
27	LRCK	I	LR clock input terminal.
28	VDD	–	Logic power supply terminal.

■ μPD78214CW-714/IC101

1) Outward From



2) Terminal Description

Pin No.	Port Name	I/O	Active	Explanation
2	SQCK	O		A terminal which outputs SUB-Q readout clock CD IC.
3	DATA	O		A terminal which outputs serial data to control the CD servo IC "CXA1082" and the signal processing IC "CXD1167".
4	XLT	O		A terminal which outputs latch.
5	CLK	O		A terminal which outputs the serial data transfor clock.
6	LED SEL	I		A terminal which inputs LED indication. When the terminal is turned to "H", six LEDs and the inserting window illumination is controlled by a command on C-BUS. When it is turned to "L", the LEDs and illumination is controlled by 7-pin +B REM terminal.
7	+B REM	I		A terminal which inputs +B-REMOTE terminal. When 6-pin LED SEL terminal is turned to "L" this terminal controls six LEDs and inserting window illumination. The lamp lights when the 6-pin LED SEL terminal is turned to "L" and it turns out when the terminalis turned to "H".
8	FOK	I	H	A terminal which receives signal from the focus OK comparator output terminal of CXA1082 "H" indicates FOCUS OK and "L" FOCUS NG.
9	GFS	I	H	A terminal which indicates that the frame sink of "CXD1167" is locked "H" indicates normal operation and "L" error.
10	XRST	O	L	A terminal which reset CXA1082 and CXD1167.
11	N.C	O		
12	RELAY	O	H	A terminal which controls AUDIO RELAY of the external select box. The terminal is controlled by the command of C-BUS Normally. "H" is outputted when the autochanger is in the PLAY mode.
13	D MUTE	O	H	A terminal which controls digital muting of CXD1167. When ATTM of internal Register "A" in CDX1167 is "O" the terminal is turned to "L" and audio signal is outputted normally. When the termianl is turned to "H" no sound is produced with - ∞B.
14	RESET	I	L	A terminal which resets the IC.
15 16	X1 X2	O I		4MHz terminal which is connected to the ceramic resonator to oscillate system clock.
17	Vss	–		GND terminal.
18	D EMPH	O	L	A terminal which controls de-emphasis. It outputs "L" When a disc provided with emphasis is played back.
21	A MUTE	O	H	A terminal which controls the analog mute circuit. In the PLAYBACK or manual search mode the terminal is turned to "L" to reset muting.
22	P ON 2	O	H	A terminal which controls two system powers. When the autochanger is in the PLAY mode, the port is turned to "H" to supply power to CD ICs "CZA1082" and "CXD1167" in the STOP mode when the spindle motor stops, the terminal is turned to "L" to turn the power of CD IC OFF.
23	P ON 1	O	H	A terminal which controls one system power. When ACC detection is turned to "H" (ACC CONT from the head unit is turned "L") or when EJECT detection is turned "H" with the ACC detection turned "L" this port is turned to "H" to turn the power of entire system ON.
24	Acc detection	I	H	A terminal which receives ACC detection signal(ACC CONT from the head unit) The terminal is turned to "H" when ACC is turned ON.
25	Inserting window illumi	O	H	A terminal which controls the insering window illumination. The illumination is turned ON when the terminal is turned to "H".
26-31	LED 6-LED 1	O	L	A terminal which controls LEDs. LED-1 through LED-6 corresdond to Disc Numbers in the magazine in normal operation the terminal indicates presence of the disc it temperature error mechanical error, memorv error or forced eject error occurs, the terminal indicates the applicable error.
32	Vss	–		GND terminal
33-35	N.C	O		
36	ACC CONT	I		A terminal which inputs NMI (Non-Maskable interrupt). With input of the "H"pulse longer than 10μS. the terminal resets the STOP mode of clock stop and CPU shifts to the operation mode after elapse of clock oscillation stability period.
37	SCOR	I		A terminal which receives signal from the sub-code sink SO/SI output terminal of CXD1167. In the PLAY mode, the terminal is turned to "H" every 13.3mS to read sub-Q data.
38	B/U detection	I	L	A terminal which receives BACK-UP detection signal. When BACK-UP is turned OFF to turn the terminal to "L". CPU is put in the STOP mode.
39	DOOR SW	I		A terminal which receives door switch signal. When the door is opened, the terminal is turned to "H". When the door is closed, the terminal is turned to "L".

Pin No.	Port Name	I/O	Active	Explanation
40	DLSW	I	L	A terminal which receives signal of a switch detecting whether the mechanism can move up and down. When the terminal is turned to "L" the mechanism can move up and down.
41	EJE SEL	I		A terminal which selects ACC OFF EJECT DISABLE signal. When the terminal is turned to "H" ACC is turned OFF and EJECT key is turned ON to enable EJECT operation. When it is turned to "L" EJECT is disabled.
42	Load End SW	I	H	A terminal which receives signal of a switch detecting that the disc has been ejected entirely from the magazine. When the terminal is turned to "H" the disc has been ejected.
43	Eject Dectection	I	H	A terminal which receives signal from the EJECT key. When the terminal is turned to "H", the magazine is ejected.
44	SRQ	O	L	A terminal which sends C-BUS service request. The terminal is turned from "H" to "L" to have the master read data informing a change in the status of a slave CPU. The terminal is turned from "L" to "H" after an address has been received from the master CPU.
45	N.C	–		
46	SCK	I		A terminal which receives serial clock from C-BUS.
47	SO/SI	I/O		A terminal which receives or sends SO/SI signal of C-BUS. SO : Used as data output. BUSY signal and READY signal. SI : A mode in which address or command from the master CPU is being waited without data input and communication.
48	EA	I		A terminal which receives control signal for access to external memory. When the terminal is turned to "H" the builtin ROM is accessed. It is fixed to "H".
49	Vdd			Power supply terminal (+5V ± 10%)
50	AVss			GND terminal for A/D converter.
51	AVref			Reference volyage for A/D concerter.(+5V)
52	Magazine SW	I	L	A terminal which receives signal from a switch detecting insertion of the magazine. When the terminal is turned to "L", the magazine is inserted.
53 54	P/ESW2 P/ESW1	I I		A terminal which receives signal of a switch which detects approximate loading chucking and eject positions in the up/down direction of the mechanism.

Position	Loading	Chucking	Eject
P/ESW1	"L"	"H"	"H"
P/ESW2	"H"	"H"	"L"

55	Temperature sensor	I	L	A terminal which judges temperature when voltage applied to this port becomes lower than 2.5V. When the voltage is higher than 2.7V, temperature NG is reset to shift to the operation mode. (Used as A/D port)
56	DISC NO. PTr	I	L	A terminal which receives signal from DISC NO. detection photosensor. The terminal determines accutate position on PTr by detecting approx, position in the up/down direction of the mechanism with P/E switchs 1 and 2. Accurate position is determined when the terminal is turned to "L". (Used as A/D port)
57	Disc Detection PTr	I	H	A terminal which receives signal of the DISC presence detection photosensor. The terminal determines status(presence) of the disc in the magazine perfect ejection of the disc and its storange in the magazine. "H". Disc detected (being loaded or unloaded) (Used as A/D port)

Pin No.	Port Name	I/O	Active	Explanation
58	LED CONT	O	H	A terminal which controls LED ON/OFF operation of Disc no. PTr and DISC detection PTr. The terminal is turned to ┘OH ┘Pwhen the mechanism runs.
59	SBI C	I		A terminal which selects I/O of C-BUS and SO/SI BUS buffers. SO : "H" SI : "L"
60	SUBQ	I		A terminal which receives sub-Q data from CXD1167.
61	SENSE	I		A terminal which controls CD by recerving FZC, AS, TZC, SSTOP and BUSY, etc. from CXA1082 and CXD1167.
62 63	PL M CW PL M CCW	O O	H H	A terminal which cintrols horizontal drive of the disc to check, load and store the disc.

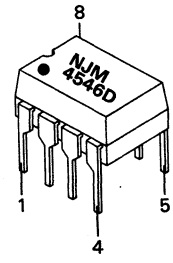
	Disc loading	Disc storage	Braking	
PL M CCW	"L"	"H"	"H"	"L"
PL M CW	"H"	"L"	"H"	"L"

64 1	U/D M CW U/D M CCW	O O	H H	A terminal which controls magazine's eject and disc's up/down operation(clamp).

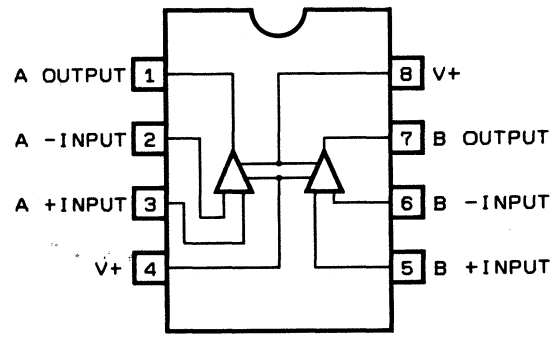
	Clamp UP	Clamp DOWN	Megazine EJECT	Braking
PL M CCW	"H"	"L"	"L"	H L
PL M CW	"L"	"H"	"H"	H L

■ NJM4565D (Dual Op-Amp./IC102,103)

1) Outward From

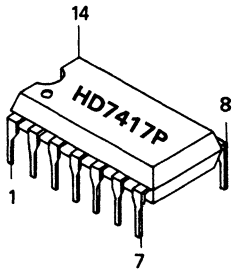


2) Block Diagram

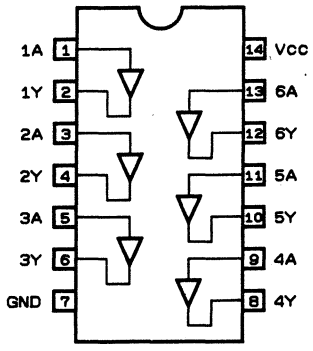


■ HD7417P (HEX-Buffers/Driver/IC105)

1) Outward From

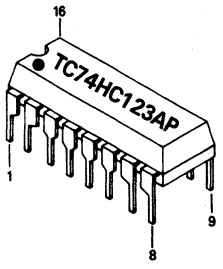


2) Block Diagram

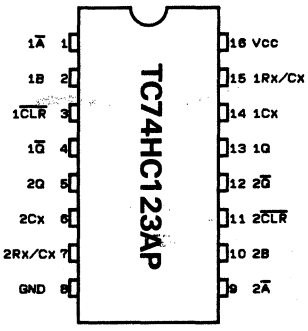


■ TC74HC123AP(Multivibrator/IC108)

1) Outward From



2) Terminal Connection



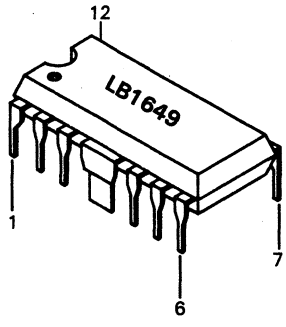
3) Truth Table

INPUT			OUTPUT		NOTE
Ā	B	CLR	Q	Q̄	
↓	H	H	⊓	⊔	OUTPUT ENABLE
H	L	H	L	H	INHIBIT
H	X	H	L	H	INHIBIT
L	↓	H	⊓	⊔	OUTPUT ENABLE
L	H	↓	⊓	⊔	OUTPUT ENABLE
X	X	L	L	H	INHIBIT

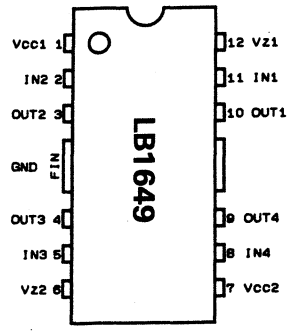
X : Don't Care

■ LB1649 (Motor Driver/IC110)

1) Outward From



2) Terminal Description



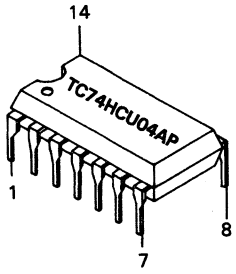
3) Operation Mode Table

IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	L	L	0	0	L	L
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

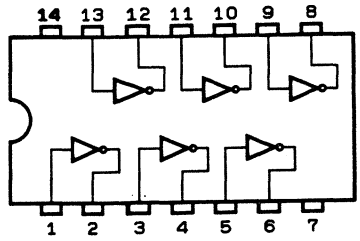
INPUT			OUTPUT				MODE	
IN1	IN2,3	IN4	OUT1	OUT2	OUT3	OUT4	M1	M2
0	0	0	L	L	L	L	BRAKE	BRAKE
1	0	0	H	L	L	L	CW/CCW	BRAKE
0	1	1	L	H	L	L	CW/CCW	BRAKE
1	1	0	L	L	H	L	BRAKE	CW/CCW
0	0	1	L	L	L	H	BRAKE	CW/CCW
1	1	1	L	L	L	L	BRAKE	BRAKE

■ TC74HCU04AP (HEX-Inverter/IC501)

1) Outward From

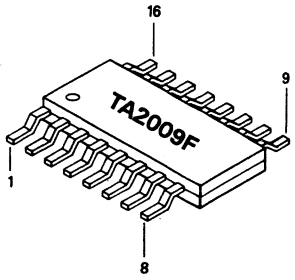


2) Block Diagram

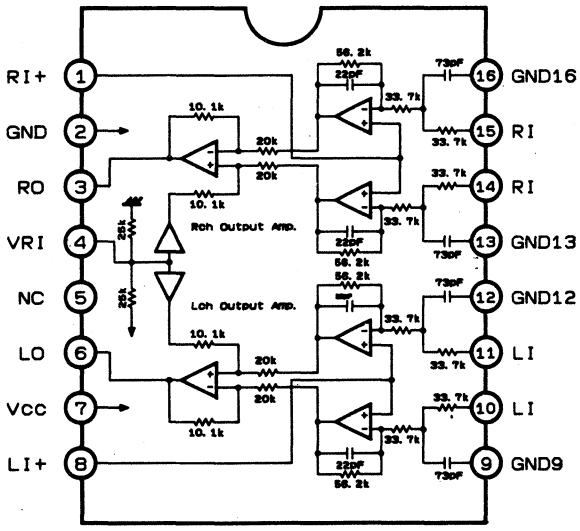


■ TA2009F (DA Converter Filter/IC5)

1) Outward From



2) Block Diagram

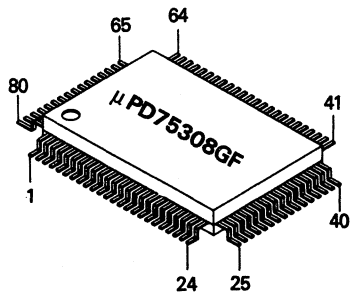


3) Terminal Description

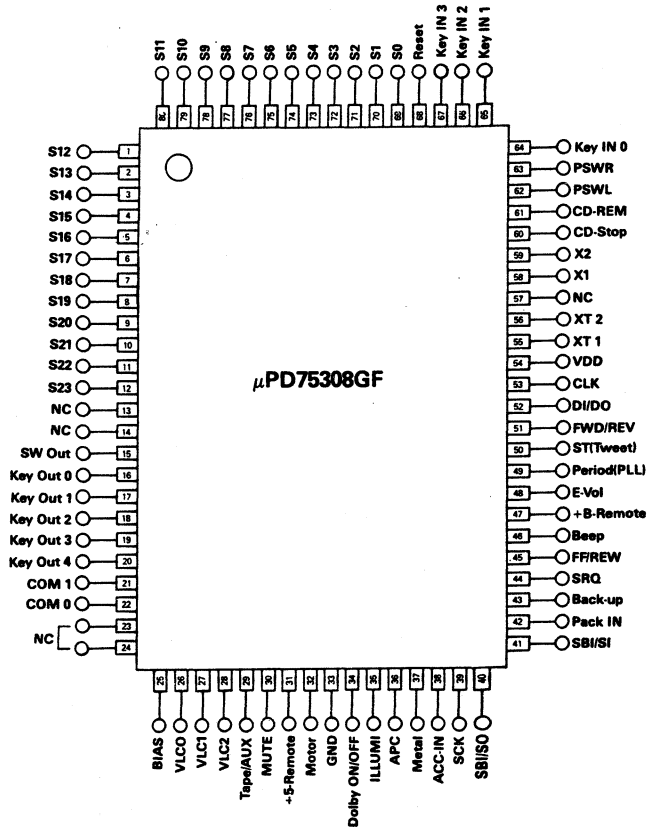
Pin No.	Port Name	I/O	Explanation
1	RI+	I	Forward input terminal for R-ch operation amplifier. (Connected to VR1)
2	GND	–	Ground terminal.
3	RO	O	R-ch analog output terminal.
4	VRI	–	Reference voltage terminal. (Vcc/2)
5	NC	–	Non-connected terminal.
6	LO	O	L-ch analog output terminal.
7	VCC	–	Supply voltage terminal.
8	LI+	I	Forward input terminal for L-ch operation amplifier. (Connected to VR1)
9	GND9	–	Filter ground terminal for L-ch reverse input.
10	LI	I	L-ch forward input terminal. (Connected to LO of TC9237F/N)
11	LI	I	L-ch reverse input terminal. (Connected to LO of TC9237F/N)
12	GND12	–	Ground terminal for L-ch forward input filter.
13	GND13	–	Ground terminal for R-ch forward input filter.
14	RI	I	R-ch reverse input terminal. (Connected to RO of TC9237F/N)
15	RI	I	R-ch forward input terminal. (Connected to RO of TC9237F/N)
16	GND16	–	Grounding terminal for R-ch reverse input filter.

■ μPD75308GF (LCD Control LSI/IC101)

1) Outward From

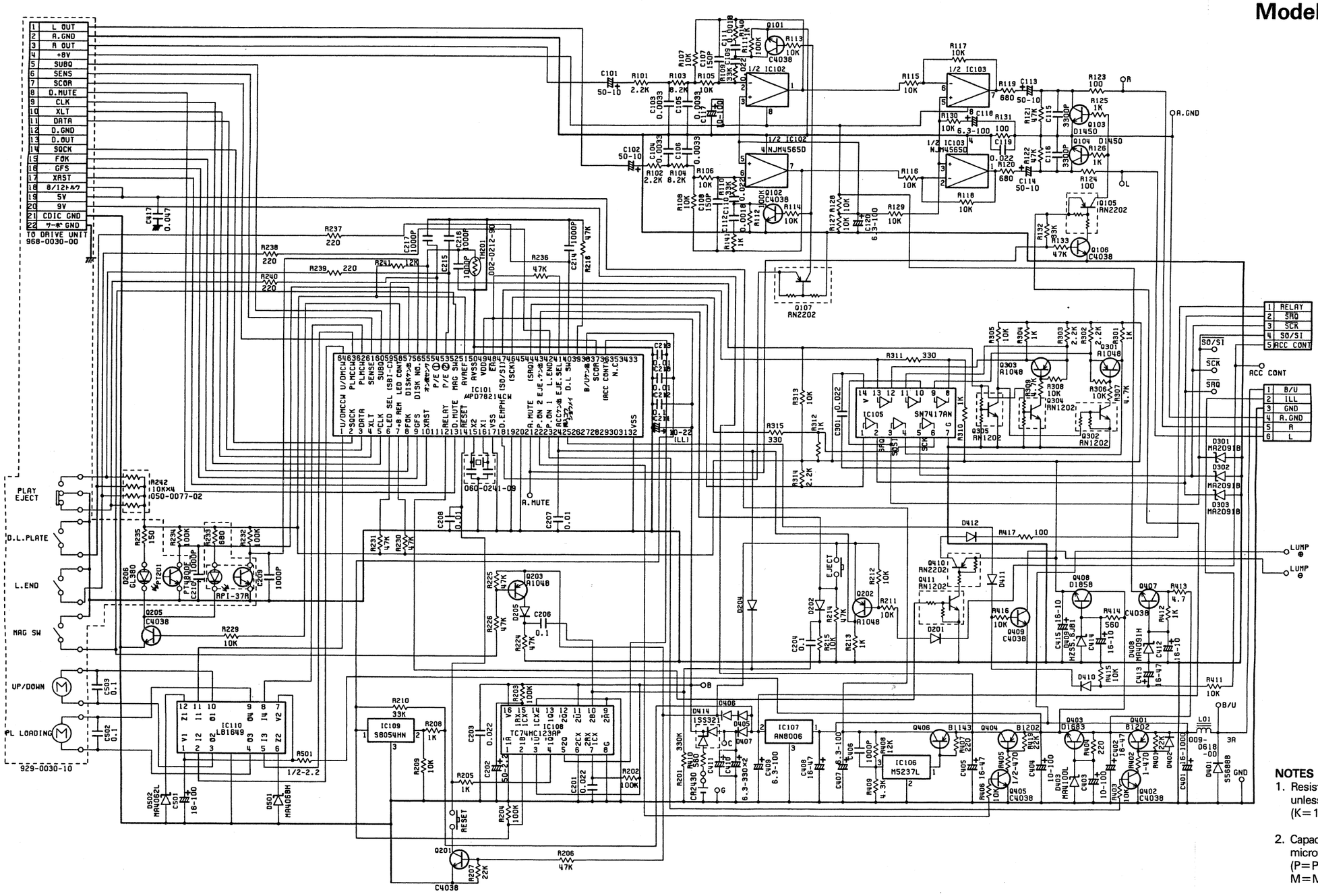


2) Terminal Connection


μPD75308GF
S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1 S0 Reset Key IN 3 Key IN 2 Key IN 1
S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 NC NC SW Out Key Out 0 Key Out 1 Key Out 2 Key Out 3 Key Out 4 COM 1 COM 0 NC
Key IN 0 PSWR PSWL CD-REM CD-Stop X2 X1 NC XT 2 XT 1 VDD CLK DI/DO FWD/REV ST(Tweet) Period(PLL) E-Vol +B-Remote Beep FF/REW SRQ Back-up Pack IN SBI/SI
BIAS VLC0 VLC1 VLC2 Tape/AUX MUTE +5-Remote Motor GND Dolby ON/OFF ILLUMI APC Metal ACC-IN SCK SBI/SO

Schematic Diagram (I)

Model No.:XM-700(I)

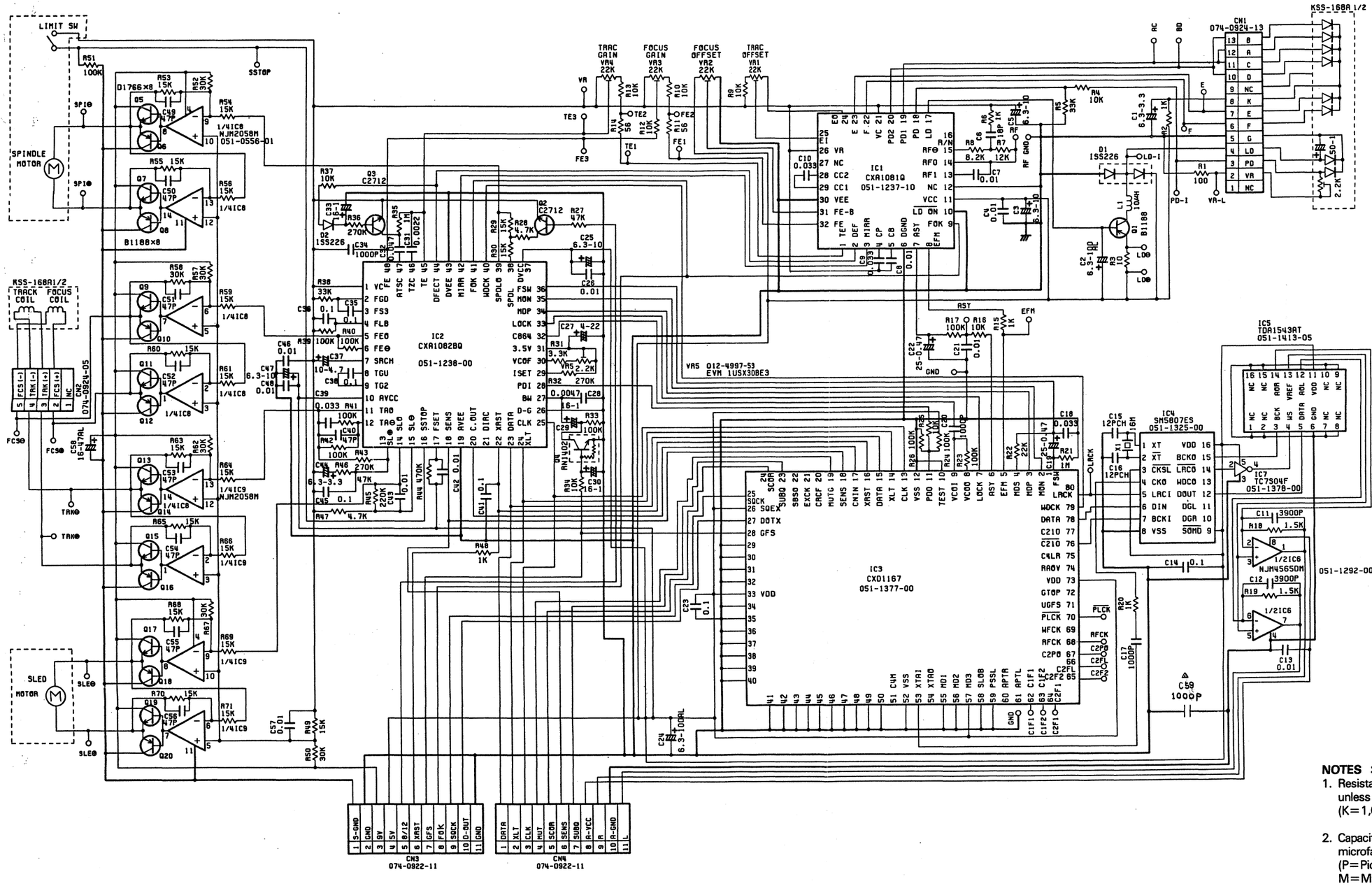


NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic Diagram (II)

Model No.:XM-700(II)

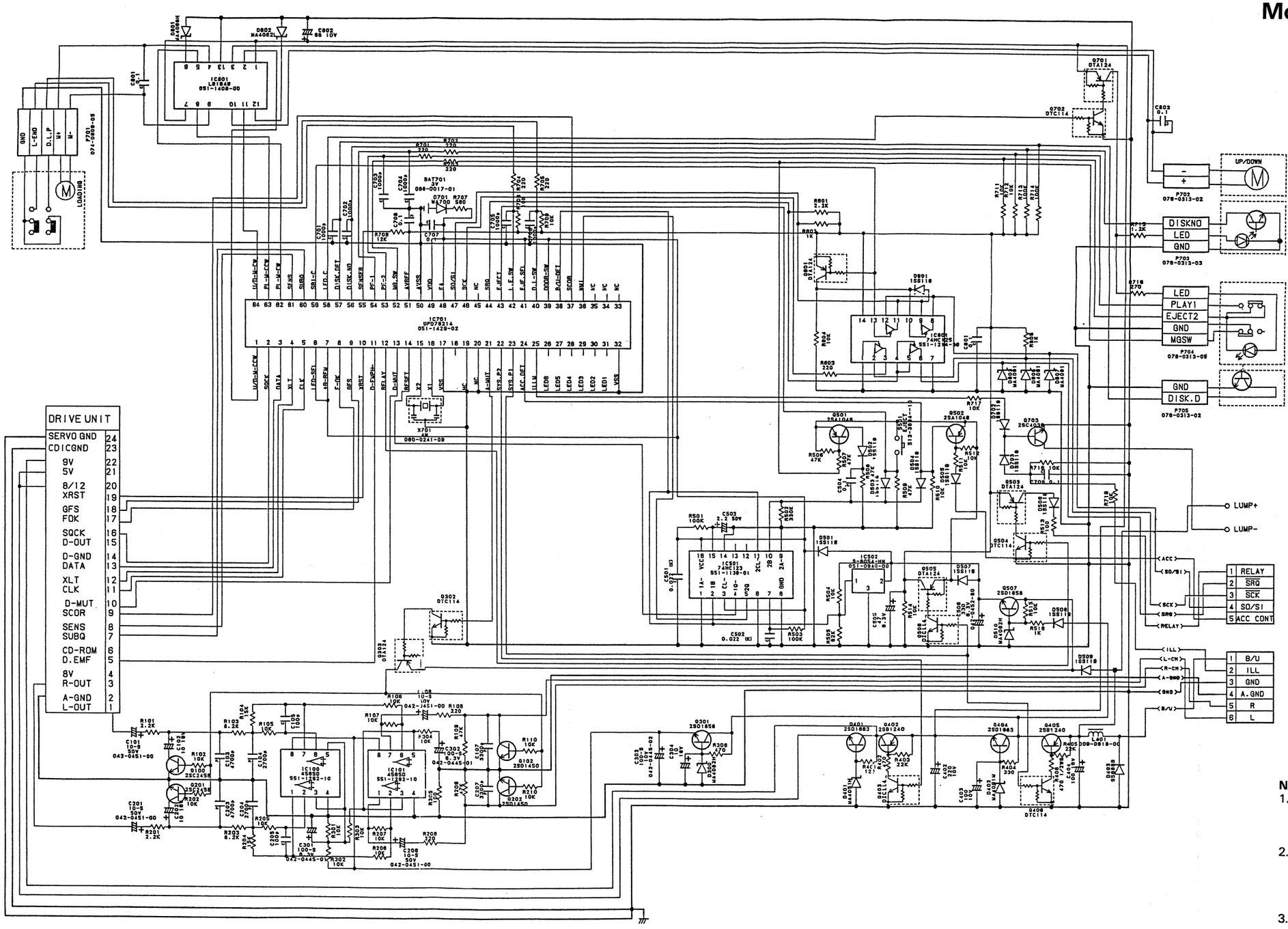


NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic Diagram (I)

Model No.:XM-710(I)

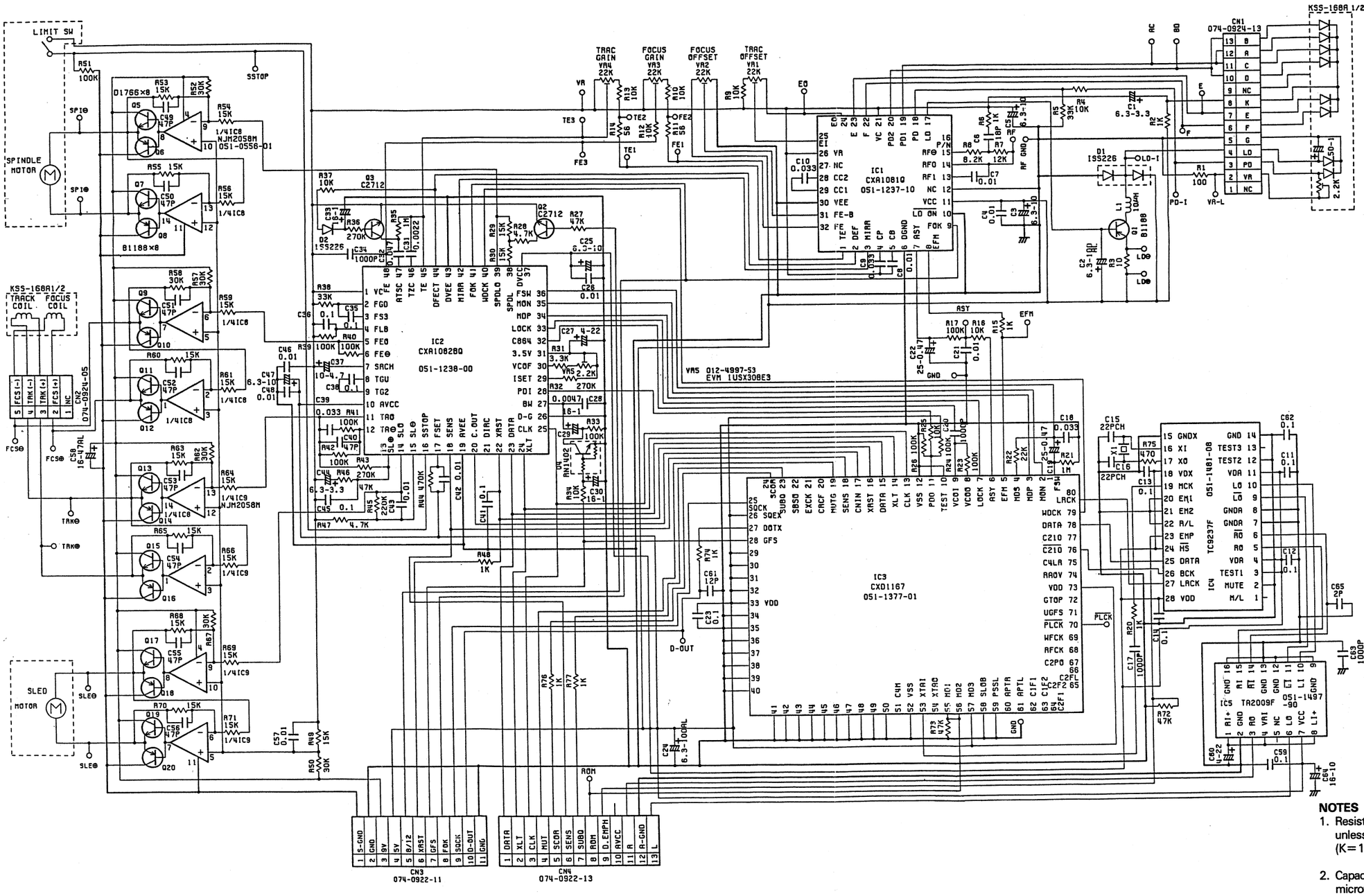


NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic Diagram (II)

Model No.:XM-710(II)

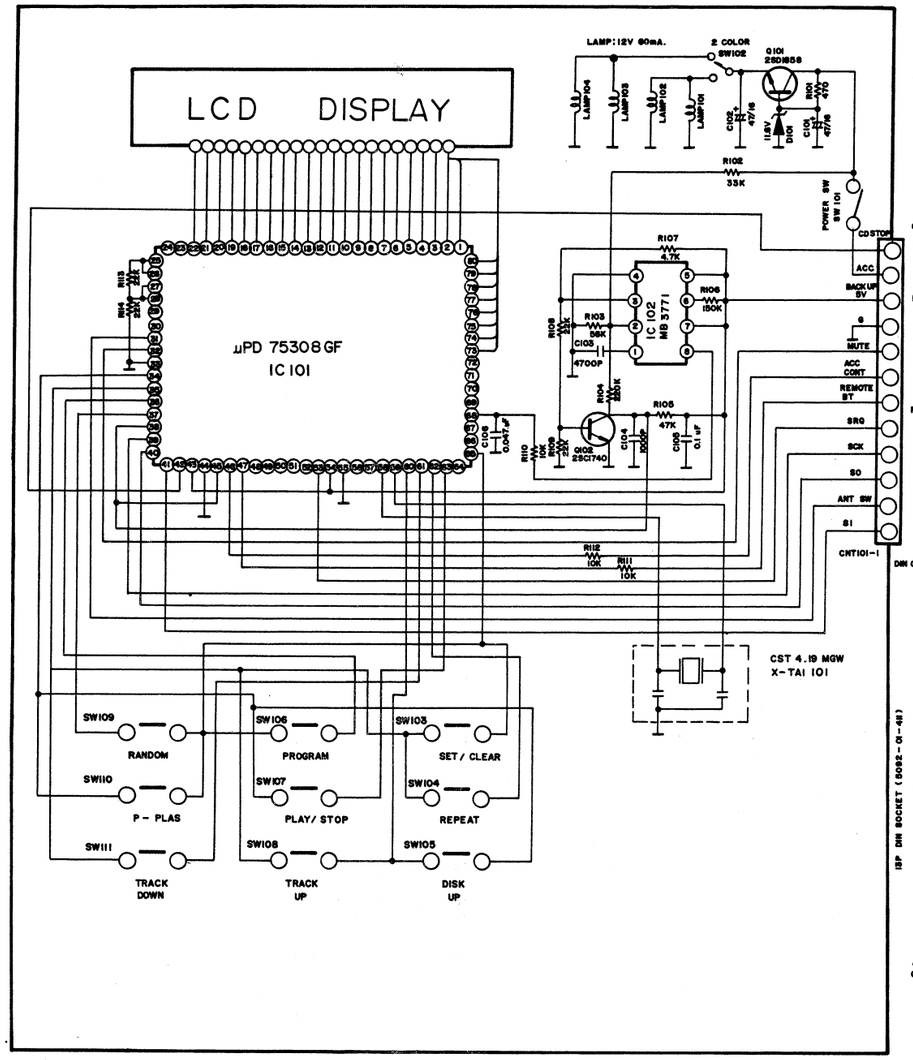


NOTES :

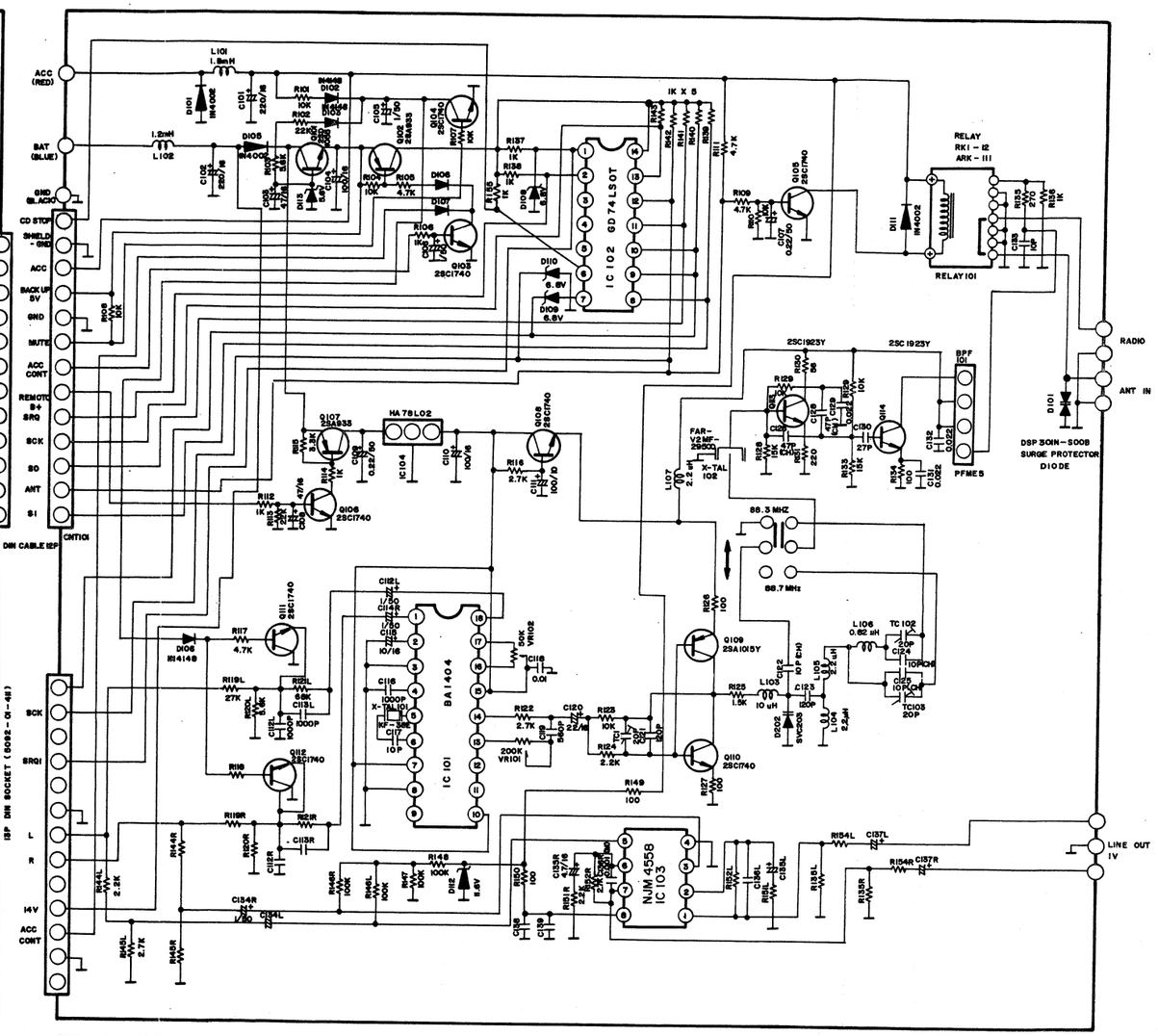
1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic Diagram

Model No.:FMX-30/CMX-20



MODEL | CMX 20



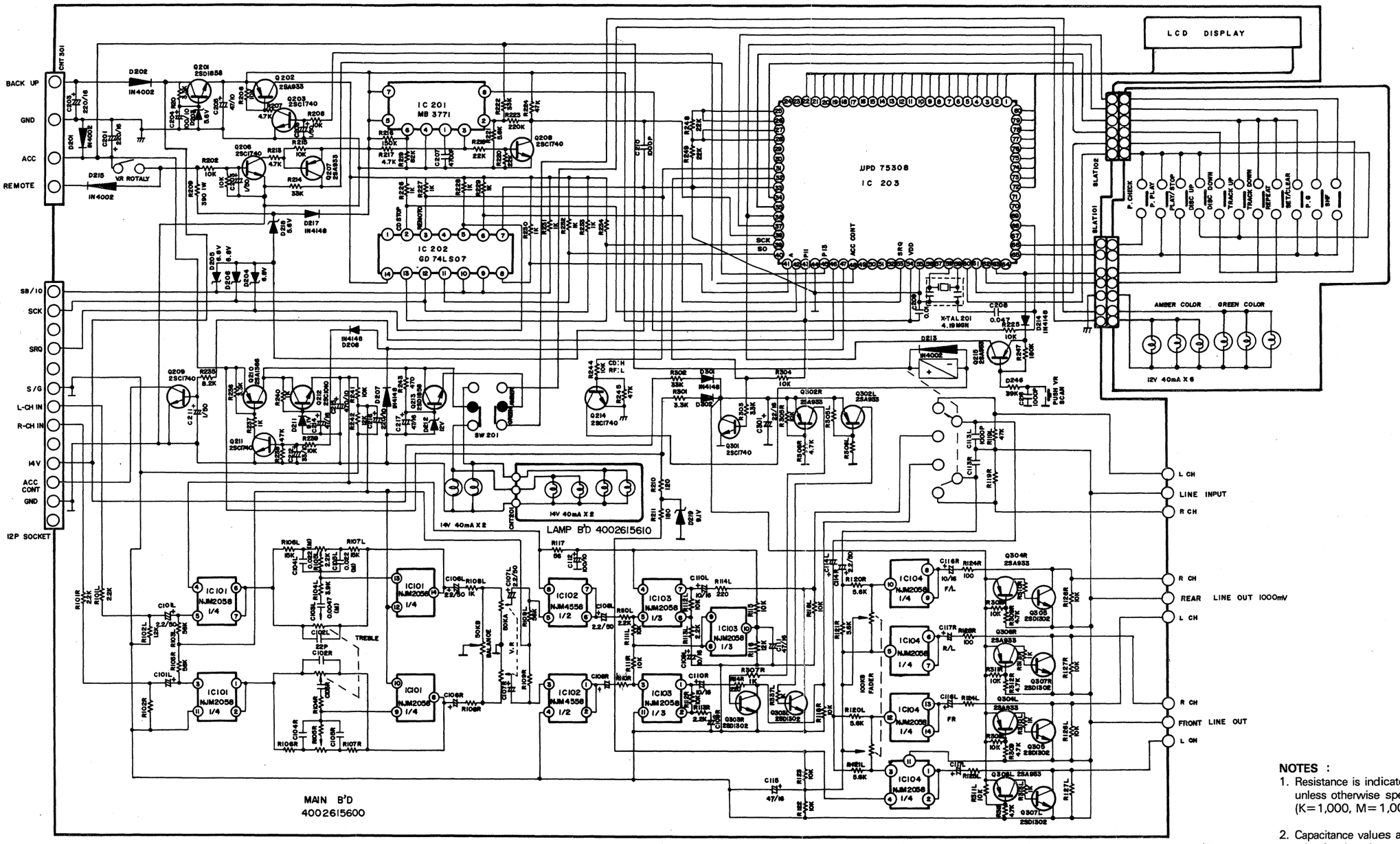
MODEL | FMX 30

NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic Diagram

Model No.:CRX-50



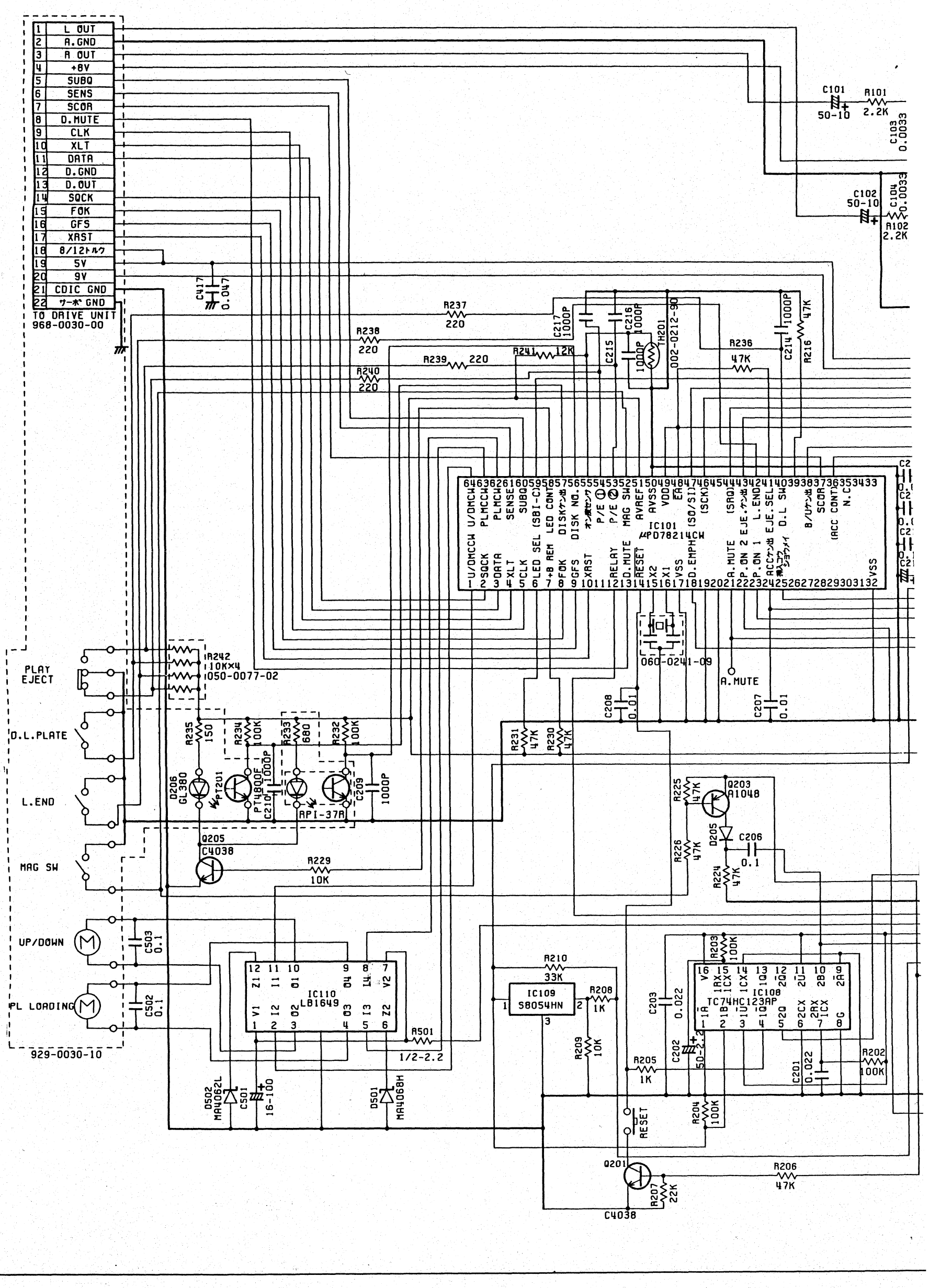
NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic

MODEL No.

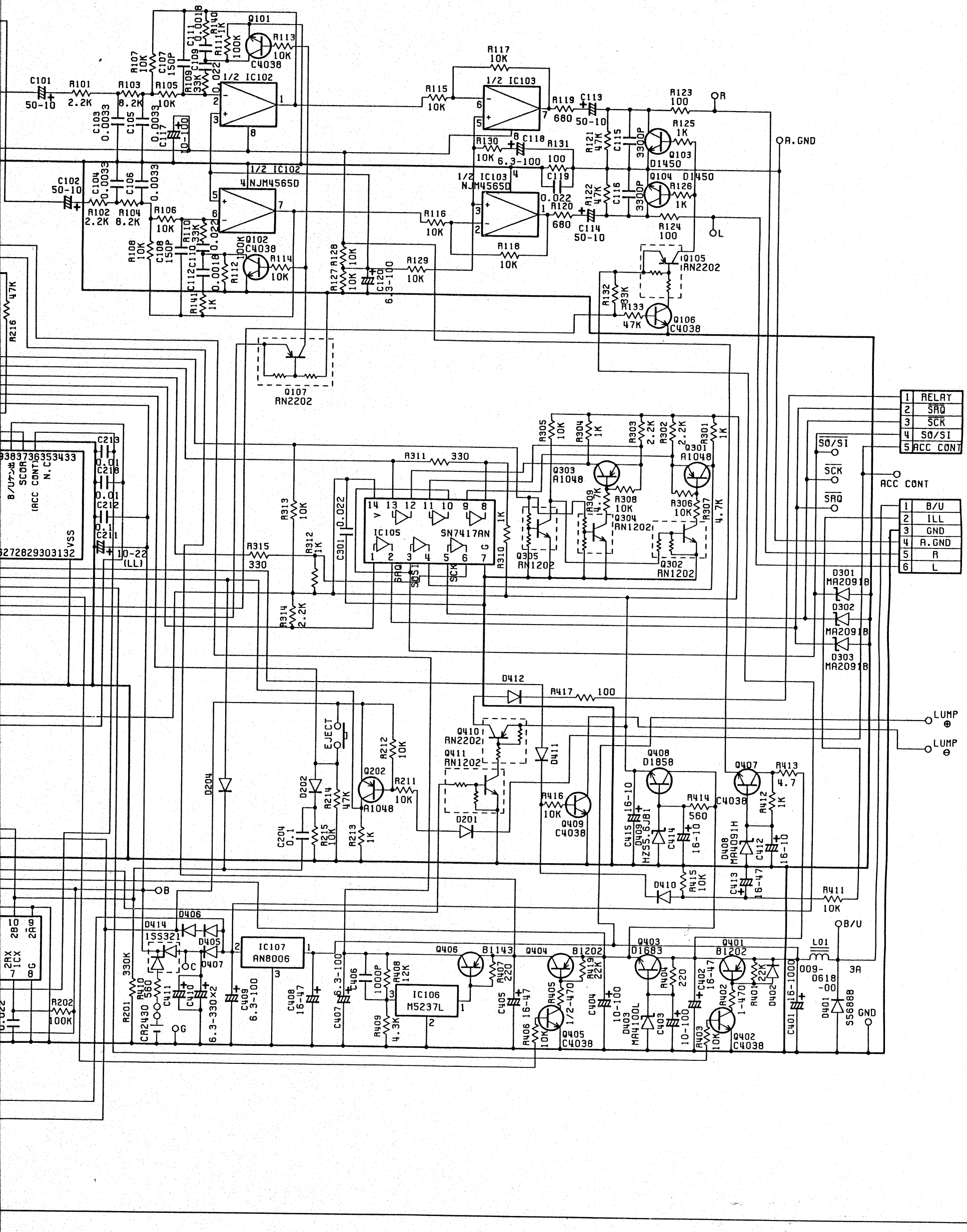
	A	B	C
1			
2			
3			
4			
5			



D E F G

chematic Diagram

ODEL No. : XM-700(I)



Schematic Di

MODEL No. : XM-

A B C D

1 2 3 4 5

LIMIT SW
R51 100K
SSTOP
SPIΘ
SPIΦ
SPINDLE MOTOR
D1766×8
R53 15K
R52 30K
Q5
C49 47P
Q6
R54 15K
1/4IC8 NJM2058M 051-0556-01
R55 15K
Q7
C50 47P
Q8
R56 15K
1/4IC8
B1188×8
KSS-168A1/2
TRACK COIL
FOCUS COIL
R58 30K
R57 30K
Q9
C51 47P
Q10
R59 15K
1/4IC8
R60 15K
Q11
C52 47P
Q12
R61 15K
1/4IC8
CN2 074-0924-05
5 FCS(-) 4 TAK(-) 3 TAK(+) 2 FCS(+) 1 NC
FCSΘ
FCSΦ
C58 16-47AL
R63 15K
R62 30K
Q13
C53 47P
Q14
R64 15K
1/4IC9 NJM2058M
TAKΘ
TAKΦ
R65 15K
Q15
C54 47P
Q16
R66 15K
1/4IC9
R68 15K
30K R67
Q17
C55 47P
Q18
R69 15K
1/4IC9
SLED MOTOR
SLEΘ
SLEΦ
R70 15K
Q19
C56 47P
Q20
R71 15K
1/4IC9
C57 0.01
R49 15K
R50 30K
C46 0.01
C47 6.3-10
C48 0.01
C39
0.033 R41 100K
C40 47P
R42 100K
R43 47K
C44 6.3-3.3
R46 270K
C45 0.1
R45 220K
C43 0.01
R44 470K
C42 0.01
C41 0.1
R47 4.7K
R48 1K
R37 10K
Q3 C2712
C33 16-1
R36 270K
D2 1SS226
C34 1000P
C32 0.047
R35
C31 1M
0.0022
R38 33K
C36 0.1
C35 0.1
R40 100K
R39 100K
C37 10-4.7
C38 0.1
IC2 CXA1082BQ 051-1238-00
1 VCC 2 FGD 3 FS3 4 FLB 5 FEO 6 FEΘ 7 SRCH 8 TGU 9 TG2 10 AVCC 11 TAO 12 TAΘ 13 SLΦ 14 SLO 15 SLΘ 16 SSTOP 17 FSET 18 SENS 19 AVEE 20 C.OUT 21 DIRC 22 XRST 23 DATA 24 XLT
48 FE 47 ATSC 46 TZC 45 TE 44 DFECT 43 DVEE 42 MIRR 41 FOK 40 WDCK 39 SPDLO 38 SPDL 37 DVCC
36 FSW 35 MON 34 MDP 33 LOCK 32 C864 31 3.5V 30 VCOF 29 ISET 28 PDI 27 BW 26 D-G 25 CLK
VR
TE3
FE3
TRAC GAIN VR4 22K
FOCUS GAIN VR3 22K
FOCUS OFFSET VR2 22K
R13 10K
R14 56
TE2
R12 10K
R10 10K
R11 56
FE2
TE1
FE1
Q2 C2712
R27 47K
R28 4.7K
R29 15K
R30 15K
C25 6.3-10
C26 0.01
C27 4-22
R31 3.3K
VR5 2.2K
R32 270K
0.0047 C28 16-1
C29
R33 100K
Q4 RN1402
R34 10K
C30 16-1
VR5 012 EVM
C23 0.1
C24 6.3-100AL
CN3 074-0922-11
1 S-GND 2 GND 3 9V 4 5V 5 8/12 6 XRST 7 GFS 8 FOK 9 SQCK 10 D-OUT 11 GND
CN4 074-0922-11
1 DATA 2 XLT 3 CLK 4 MUT 5 SCOR 6 SENS 7 SUBQ 8 A-VCC 9 R 10 A-GND 11 L

D E F G

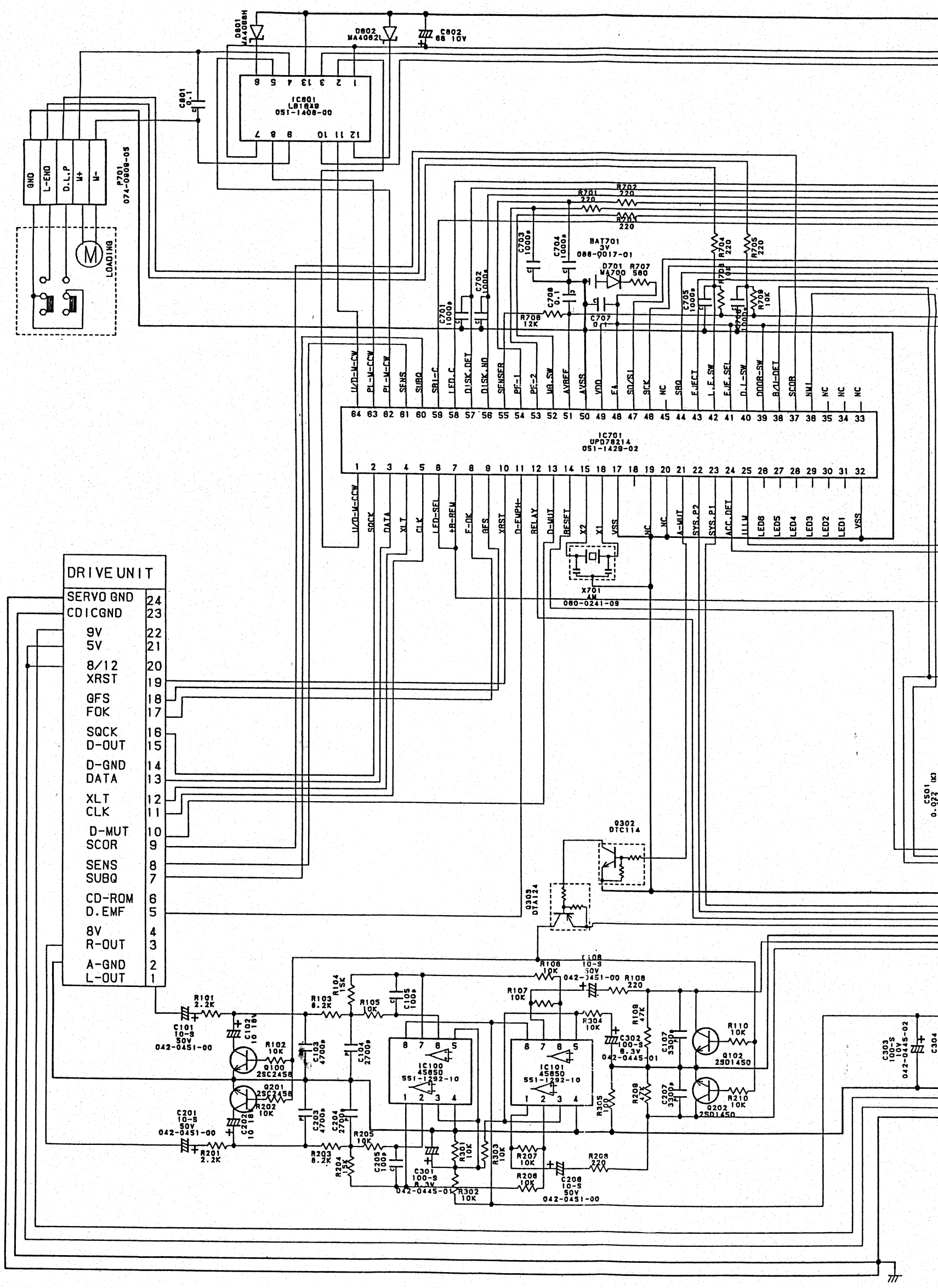
ematic Diagram

EL No. : XM-700(II)

FOCUS GAIN VR3 22K
FOCUS OFFSET VR2 22K
TRAC OFFSET VR1 22K
R13 10K
R10 10K
R9 10K
R12 10K
R11 56
56
TE2
FE2
FE1
TE1
C10 0.033
IC1
CXA1081Q
051-1237-10
R8 8.2K
C6 18P
R6 1K
R7 12K
C5 6.3-10
RF
RF GND
C7 0.01
R5 33K
R4 10K
C1 6.3-3.3
R2 1K
E
F
AC
BD
CN1
074-0924-13
KSS-168A 1/2
D1
ISS226
LD-I
R1 100
PD-I
VR-L
50-1
2.2K
L1 10uH
Q1 B1188
C4 0.01
C3 6.3-10
C2 6.3-10
R3 10
LD⊖
LD⊕
C9 0.033
C8 0.01
ASY
EFM
R17 100K
R16 10K
R15 1K
C22 25-0.47
C21 0.01
GND
VR5 012-4997-53
EVM 1USX30BE3
R25 10K
C20 1000P
R26 100K
R24 100K
R23 100K
C18 0.033
C19 25-0.47
R22 22K
R21 1M
LRCK
IC5
TDA1543AT
051-1413-05
IC4
SM5807ES
051-1325-00
C15 12PCH
16M
X1
C16 12PCH
IC7
TC7S04F
051-1378-00
C11 3900P
R18 1.5K
1/2IC6
NJM4565DM
C12 3900P
R19 1.5K
C13 0.01
051-1292-00
C14 0.1
IC3
CXD1167
051-1377-00
C23 0.1
R20 1K
C17 1000P
C24 6.3-100AL
C59 1000P
PLCK
RFCK
C2PO
C2FL
C2F2
GND
C1F1
C1F2
C2F1
11L

Schematic D

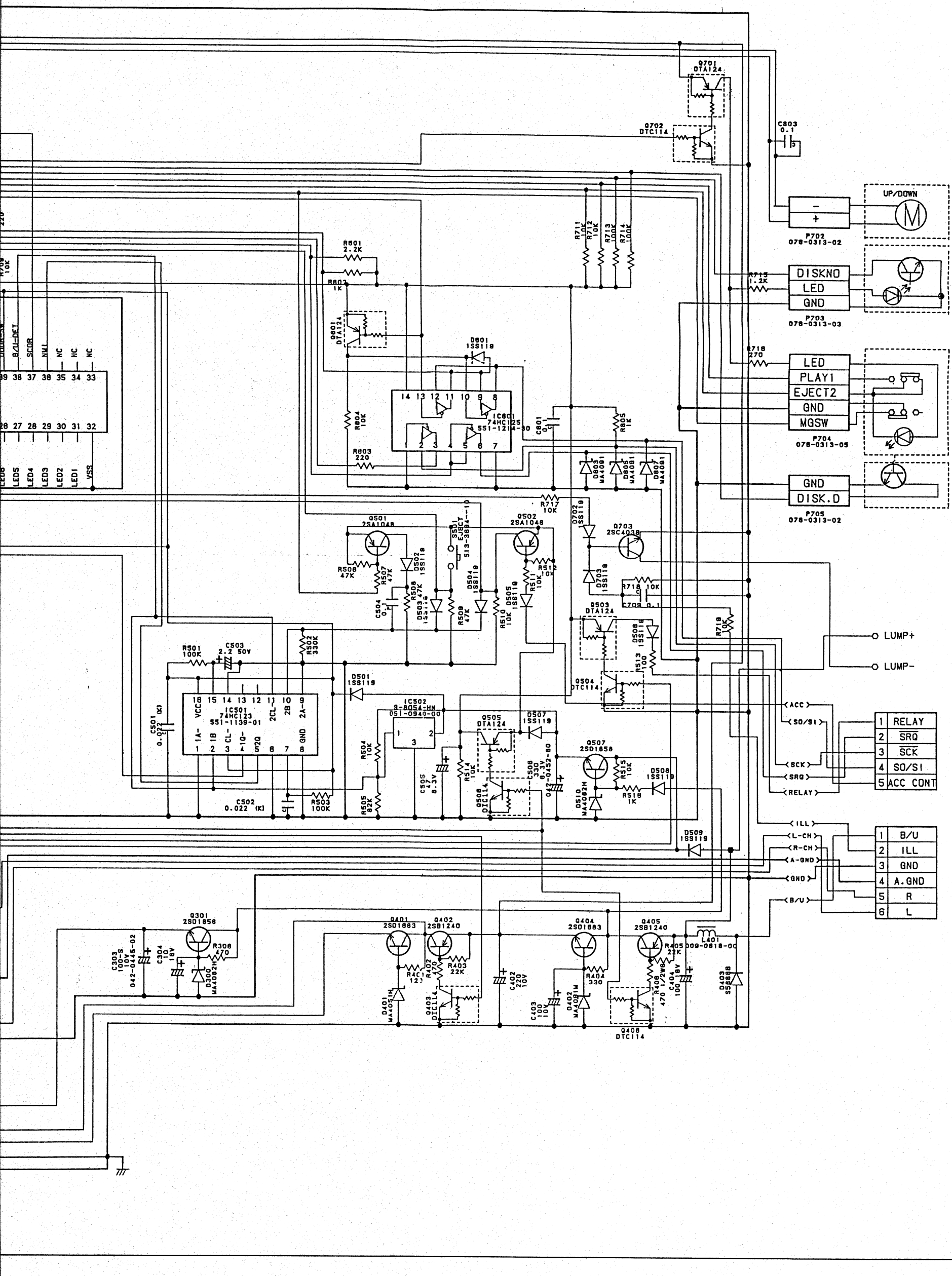
MODEL No. : XM



D E F G

Schematic Diagram

MODEL No. : XM-710(I)



Schematic D

MODEL No. : XM

A B C D

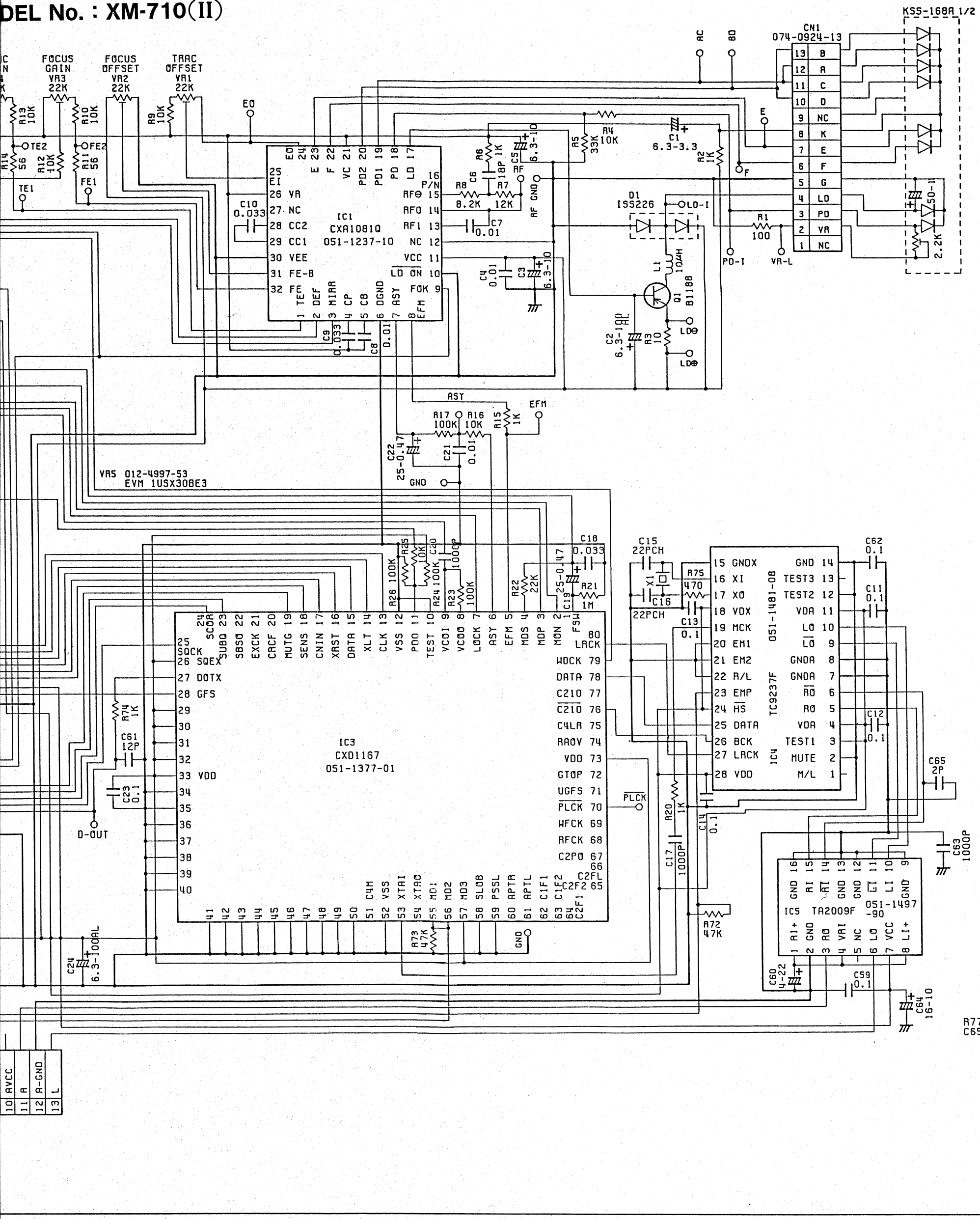
1 2 3 4 5

LIMIT SW
SSTOP
R51 100K
SPIΘ
SPIDLE MOTOR
SPIΦ
D1766×8
Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20
C49 47P
C50 47P
C51 47P
C52 47P
C53 47P
C54 47P
C55 47P
C56 47P
R52 30K
R53 15K
R54 15K
R55 15K
R56 15K
R57 30K
R58 30K
R59 15K
R60 15K
R61 15K
R62 30K
R63 15K
R64 15K
R65 15K
R66 15K
R67 30K
R68 15K
R69 15K
R70 15K
R71 15K
1/4IC8 NJM2058M 051-0556-01
1/4IC9 NJM2058M
B1188×8
KSS-168A1/2
TRACK COIL
FOCUS COIL
CN2 074-0924-05
FCS(-) TRK(-) TRK(+) FCS(+) NC
5 4 3 2 1
FCSΘ
FCSΦ
TRKΘ
TRKΦ
C58 16-47AL
SLED MOTOR
SLEΘ
SLEΦ
C46 0.01
C47 6.3-10
C48 0.01
C57 0.01
R49 15K
R50 30K
VR
TRAC GAIN VR4 22K
FOCUS GAIN VR3 22K
R13 10K
R10 10K
R14 56
R12 10K
R11 56
TE3
TE2
FE2
FE3
TE1
FE1
R37 10K
Q3 C2712
C33 16-1
R36 270K
D2 1SS226
R35 1M
C34 1000P
C32 0.047
C31 0.0022
Q2 C2712
R29 15K
R30 15K
R28 4.7K
R27 47K
C25 6.3-10
C26 0.01
R38 33K
C36 0.1
C35 0.1
R40 100K
R39 100K
C37 10-4.7
C38 0.1
C39 0.033
R41 100K
C40 47P
R42 100K
R43 270K
C44 6.3-3.3
R46 47K
C45 0.1
R45 220K
C43 0.01
R44 470K
C42 0.01
C41 0.1
R47 4.7K
R48 1K
IC2 CXA1082BQ 051-1238-00
1 VCFE 2 FGO 3 FS3 4 FLB 5 FEO 6 FEΘ 7 SRCH 8 TGU 9 TG2 10 AVCC 11 TAO 12 TAΘ 13 SLΦ 14 SLO 15 SLΘ 16 SSTOP 17 FSET 18 SENS 19 AVEE 20 C.OUT 21 DIRC 22 XRST 23 DATA 24 XLT
48 ATSC 47 TZC 46 TE 45 DFECT 44 DVEE 43 MIRR 42 FOK 41 WDCK 40 SPDLO 39 SPDL 38 DVCC 37 FSW 36 MON 35 MDP 34 LOCK 33 C864 32 3.5V 31 VCOF 30 ISET 29 PDI 28 BW 27 D-G 26 CLK 25
C27 4-22
R31 3.3K
VR5 2.2K
R32 270K
C28 0.0047 16-1
R33 100K
C29
C30 16-1
R34 10K
RN1402
VR5
D-OUT
R76 1K
R77 1K
C24 6.3-100AL
ROM
CN3 074-0922-11
1 S-GND 2 GND 3 9V 4 5V 5 8/12 6 XRST 7 GFS 8 FOK 9 SOCK 10 D-OUT 11 GND
CN4 074-0922-13
1 DATA 2 XLT 3 CLK 4 MUT 5 SCOR 6 SENS 7 SUBO 8 ROM 9 D.EMPH 10 AVCC 11 A 12 A-GND 13 L

D E F G

hematic Diagram

DEL No. : XM-710(II)

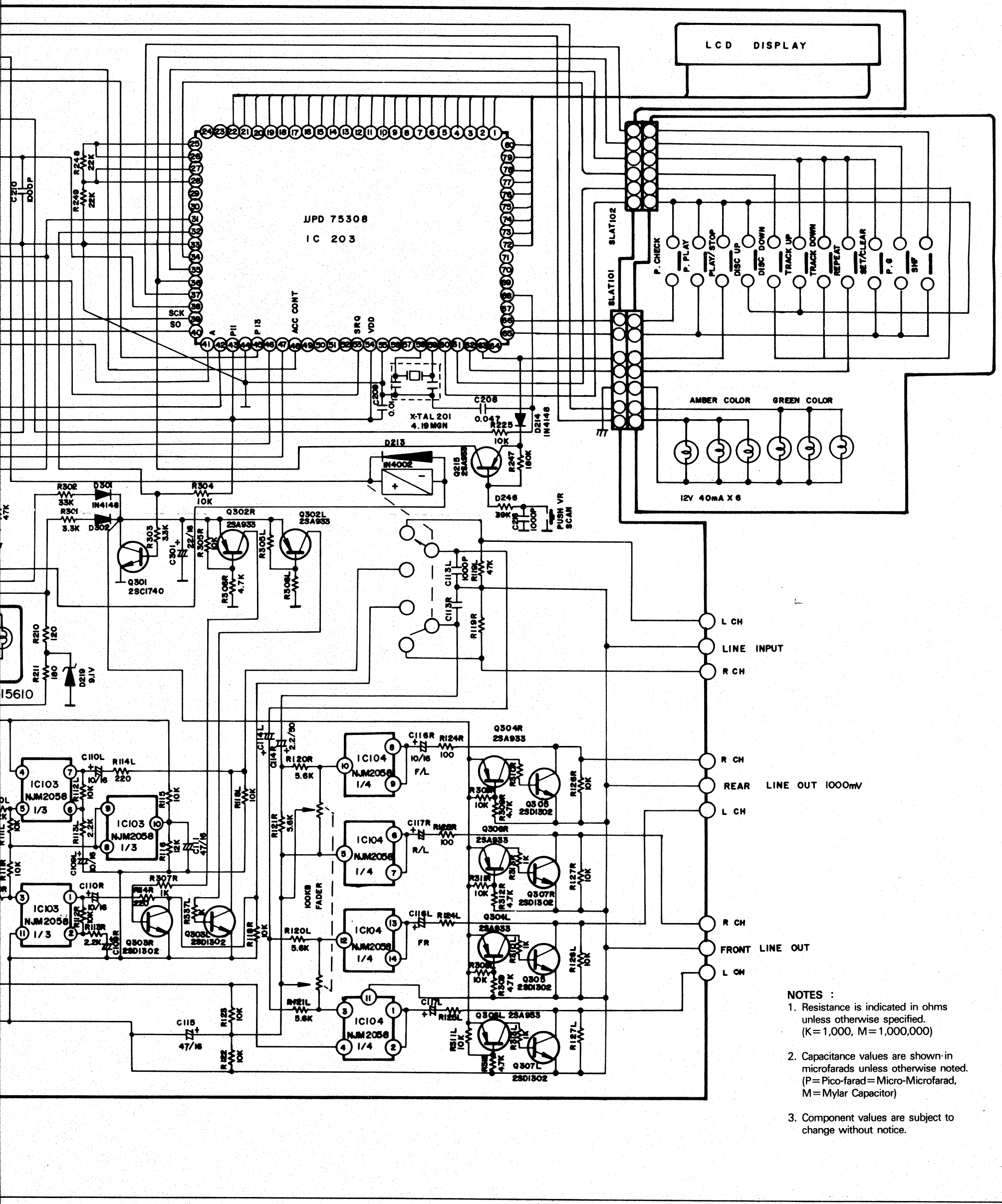


Schematic D

MODEL No. : C

hematic Diagram

MODEL No. : CRX-50



NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.

Schematic
MODEL No. : FMX

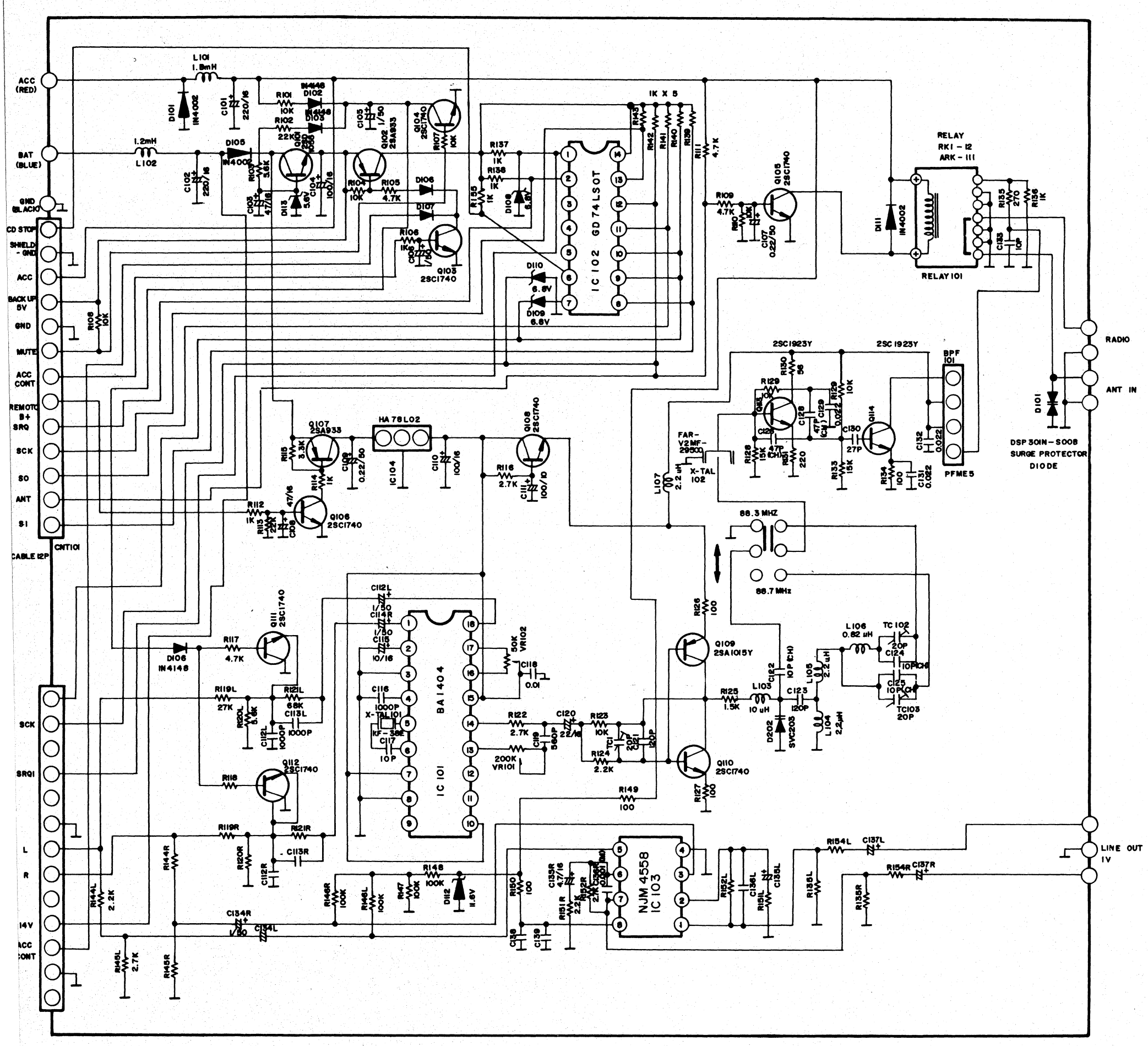
MODEL	CMX 20

MODEL	FMX 30

D E F G

Schematic Diagram

MODEL No. : FMX-30 / CMX-20



MODEL	FMX 30

NOTES :

1. Resistance is indicated in ohms unless otherwise specified. (K=1,000, M=1,000,000)
2. Capacitance values are shown in microfarads unless otherwise noted. (P=Pico-farad=Micro-Microfarad, M=Mylar Capacitor)
3. Component values are subject to change without notice.